THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

MAY 8TH, 1883.

Professor W. H. FLOWER, LL.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Professor JACOB HEIBERG.—The Viking-Ship discovered at Gokstad, in Norway. By N. Nicolaysen.

From the AUTHOR.—Étude Anatomique et Anthropologique sur les Os Wormiens. By Dr. Victor Chambellan.

—— The Greek Plays in their relations to the Dramatic Unities. By George Gould.

—— Quelques Observations sur l'Anthropologie des Comalis. By Dr. E.-T. Hamy.

—— Les Multilations Dentaires au Mexique et dans le Yucatan. By Dr. E.-T. Hamy.

—— La Croix de Téotihuacan. By Dr. E.-T. Hamy.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie. 1882, Heft 6; 1883, Heft 1.

From the GEOGRAPHICAL SOCIETY OF LISBON.—A Questão do Meridiano Universal.

From the ACADEMY.—Atti della R. Accademia dei Lincei. Vol. VII, Fas. 5–8.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. January, 1883.

From the SOCIETY.—Proceedings of the Royal Geographical Society. May, 1883.
—— Proceedings of the Asiatic Society of Bengal. December, 1882; January, 1883.
—— Journal of the Asiatic Society of Bengal. Extra number to Part I, 1883.
—— Journal of the Society of Arts. Nos. 1588, 1589.
—— The Constitution of the Isle of Man. Manx Society. Vol. XXXI.
—— Boletim da Sociedade de Geographia de Lisboa.
—— Bulletins de la Société d'Anthropologie de Paris. No. 1, 1883.
—— Bulletin de la Société Imperiale des Naturalistes de Moscou. 1882, No. 2, 1e and 2e liv.
From the EDITOR.—American Antiquarian. April, 1883.
—— "Nature." Nos. 704, 705.
—— Revue d'Ethnographie. Tom. II, No. 1.
—— Revue Politique et Litteraire. Tom. XXXI, Nos. 17, 18.
—— Revue Scientifique. Tom. XXXI, Nos. 17, 18.
—— Science. No. 10.

Mr. W. GALLOWAY exhibited some bone implements and other objects found in a prehistoric shell-mound in the Island of Oransay; also a cranium and bones found in a Viking grave of the Norse pagan period at Kiloran Bay, Colonsay. These specimens were exhibited at the International Fisheries Exhibition.

The following paper was read by the author:—

On some CUSTOMS *of the* ABORIGINES *of the* RIVER DARLING, NEW SOUTH WALES. By FREDERIC BONNEY, Esq.

DURING my residence in a large area of country on the northern side of the river Darling, between the years 1865 and 1880, I had, as one of the early European settlers, the opportunity of knowing the aborigines in that district, before they were spoilt by civilisation. Employed by me as shepherds, and in other occupations, on a large sheep and cattle run, they were generally my companions in work during the first few years of my bush life, and over many a camp fire I have learnt much of their character and habits. The tribes that I know best are those called Bungyarlee and Parkungi, the former living about the creeks north of Mount Murchison; the latter by the river Darling above and below Wilcannia. They speak the one language called Weyneubulckoo, which is also spoken by the adjoining tribes called—

Baroongee, of the Lower Paroo River.
Mullia-arpa, of Yencanyah district.

Wombungee, of Fort Bourke district, on the Upper Darling.
Bo-arlee, of the Barrier Ranges.
Tung-arlee, of the Lower Darling.

The territory of these tribes lies within lat. 29°–34°, long. 141°–146°.

As a rough estimate of the aboriginal population of this territory when Europeans first settled in it, I may say I do not think it would average more than about 100 on an area of 2,000 square miles in any part of the territory. The country, in its natural state, could not support a large population, being subject to protracted droughts, during which both food and water must have been scarce. During my fifteen years' experience there were three severe droughts, varying in duration from eighteen to twenty-two months. At such times the little rain that fell on the dry and parched ground was insufficient to replenish the water-holes, or soak the ground enough to promote a growth of vegetation. But it appears, from what some of the old natives have told me, that Europeans have not experienced the worst that the country is liable to, for they say that they once saw it in a drier state than it has been since the settlers came, and there has been stock on the country as a drain on the water supply. On that occasion their only water supply was at the few springs in the back country and at the rivers. All surface water-holes were dry; some of which would, I know, stand through a two years' drought with stock drinking at them. They camped at the springs or the rivers, existing on the half-starved animals, which were forced to drink from the same supply, and in consequence of their weak condition were killed without much difficulty. In a drought there is neither grass nor herbage in the neighbourhood of water, and the desert-like appearance of the surrounding brick-red sandhills and grey-coloured clay flats is relieved only by sundry hardy bushes and small trees, which somehow hold up against the extreme dryness and hot winds. These long droughts are generally broken suddenly by a fall of 2 or 3 inches of rain, followed by lighter rains, which rapidly improve the appearance of the country; grass and herbage become abundant, and waterfowl return in large numbers to the creeks, and the aborigines gladly avail themselves of the opportunity of moving on to fresh hunting grounds, which they can only reach when surface water is plentiful.

About the year 1850 an epidemic attacked the Bungyarlee and Parkungi tribes, killing about one-third of them. I have been told by some of those who escaped that it came upon them while the country was in fair condition, and there was ample

food and water for their wants. The disease affected the legs and quite crippled those attacked. It caused a panic among them all, and they travelled as fast as they could away from the locality where the epidemic appeared, leaving in their flight the dead unburied on their track. Those who were strong escaped by walking to the Paroo River and Upper Darling, to which countries the epidemic did not extend. About Peri Lake the mortality was great, many bodies being left on the sandhills unburied.

There is a similarity in the typical features of all the Australian aborigines, but to a close observer each tribe has its own peculiarities sufficiently marked to be distinguished from one another. The Weyneubulkoo natives are in stature slightly below the average of the English. The colour of their skin in their youth is of a dark chocolate hue, which darkens with age until it is quite black in the middle-aged and old. The new-born babe is almost white, but darkens quickly, though for some time the soles of the feet and palms of the hands are white. Their hair is always quite black, that of the men rather curly, of the women straight; the men generally have long and thick beards, and the bodies of the old men are not unfrequently covered with hair. The characteristic features of all the Australian aborigines are thick lips, overhanging brow, and extended nostrils; but these are all less prominent than among the tribes farther north, in the colony of Queensland. Many of them are weak-looking people, having little muscular development in their legs and arms; their legs especially are thin, though I have met with a few remarkably well-made men among them. They have, as a rule, good hands, with well-shaped fingers and finger-nails: teeth generally very good, very white and regular; they seldom fall out, but with use wear down evenly all round until little more than stumps are left in the jaws of the old people.

Though ugly and unprepossessing in appearance they are most kind, gentle, and of quite average intelligence and morality. Dirty in their person they often are, for which the scarcity of water in most parts of their country is some excuse. The aborigines of Australia are often spoken of as the lowest type of humanity. I think this is a libel on the whole of them, and I am positive it is so as regards the tribes I know best. It is unjust to take as specimens of the race those to be seen in the civilised districts near the coast, and about townships in the interior, who have lost all the native good that was in them, and become public-house loafers, often associating with Europeans who have fallen as low as themselves. There is nothing of the nobility of the savage about them; such are certainly most

degraded creatures. To this sad end many of them come as civilisation creeps towards the interior of the country. The country having been occupied by Europeans and laid out in runs stocked with sheep and cattle, the habits of the aborigines have much changed; this probably is the cause of the rapid decrease of their number by deaths. The young now are often weakly, suffering from chest complaints; and few children are born, and fewer live to become adults. Before long the only representatives of these tribes will be some living about settlers' homes and townships, in a half-civilised state. In fact, there are now few to be found who have not been somewhat spoilt by civilisation; therefore I wish to record what I have learnt of them during their better days, and hope that others, who have had like opportunities, will do the same, so that sufficient information may be brought forward to prove their race to be better, nobler, and more intellectual than it is generally believed to be by those who have not lived among any of the tribes. All who have done so, and taken the trouble to learn something of their language, so as to better understand them, must have formed a good opinion of them.

I proceed, then, to give a description of the life-history of these tribes called Bungyarlee and Parkungi.

When a woman is near her confinement she leaves the general camp in company with another woman, and together they make a temporary camp beneath a shady tree, one or two hundred yards distant. This movement is probably made to prevent the occurrence of a death in the camp, which would cause all to move to another spot and erect fresh shelter; for after a death all desert the camp where it occurs.

It seems to have been the custom to kill many of the children directly after birth, to save trouble and privations in time of drought, when long distances must be travelled in the search for food and water, and it would be difficult in the fierce heat to transport a number of young children over a dry journey of twenty miles, and often more, without more water than can be carried in the skin bags used for that purpose. Whether the infant shall be killed or not is generally decided by the mother's brother, if she has one, and he is near at hand. If it is to be killed, that is done by a blow on the back of the head, by strangling with a rope, or choking with sand, and the body is buried without ceremony; but if it is decided that it is to be reared, the mother, as soon as possible, returns to the camp with her child, where it is carefully nursed and very well treated. Both men and women are very fond of children, and the kindest attention is shown to them by young and old alike. They are not spoilt by this kind treatment all round; one word

from the parent generally is sufficient to check a child when doing wrong, and the greatest respect is shown to parents by their children. Altogether the treatment of children by these people, after they are once taken up and nursed, is judicious and very creditable. It is strange that while the life of the new-born babe is so slightly valued at its birth, a little later it should be valued so much. If it has to be killed at the birth the work is done without any notice being taken of it, but if allowed to live, and it should die a natural death a week or so later, all the women in the camp would mourn its loss—the mother and near relations crying aloud at intervals during the day, and in the evening at sundown, either in the camp or at the grave. Mourning is worn, the same as after the death of an adult person. One mother rarely has more than four or five children, and they are sometimes not weaned from the breast until they are more than three years old. The birth of twins is not less rare than among Europeans. I know of one such case where one of the twins was killed, and the mother dying soon after, the other child, a girl, was taken charge of and suckled by another woman, and she grew up to be the worst specimen of morality I met with among the uncivilised aborigines; she was neither honest nor truthful, lacking the two virtues natural to most of them.

When a mother is about to carry her child she leans her body forward, and, taking hold of the child by its arms, swings it over her left shoulder and places it between her shoulder-blades, with its hands round her neck. She then throws a fur rug round herself and the child, and afterwards a netted bag (*numyuncka*) is drawn tight under the seat of the child, with one end brought over each shoulder of the mother, and tied together under her chin to keep the child and rug in their position; so a pouch is formed to hold the child while it is being carried about. The men generally carry children on their shoulders.

A soft cream-coloured chrysalis (*kopudger*), about $2\frac{1}{2}$ inches long, which is found under the bark of trees and at the root of broom-bushes (*poontee*), is much sought after as a nutritious food for children. It has very much the taste of a raw egg.

Some boys, when about the age of ten, have a hole bored through the septum of the nose with bone needles (*poongootah*), in which they can, when grown up, wear a bone about 6 inches long as an ornament at their dances,[1] and both girls and boys at about the same age are marked on their chest, arms, or back by raised scars (*nincka*), which are usually straight, horizontal, or vertical lines, about 2 inches in length, and close together,

[1] These, generally known as corroborrees, by these tribes are called *Yeneko*.

made by cutting the flesh with a stone chip (*carnee moolee*) in the winter season, when hoar frost is rubbed on to the flesh to numb it. Sometimes fine charcoal powder is rubbed into the cuts to lessen the pain and quicken the healing on young people; the scars are often very prominent, but they decrease with age.

Children are named after animals, birds, reptiles, or fish; the name is a word in their language meaning the movement or habit of one of them.

They avoid mentioning the name of a deceased person, and the word is not used in their language until it can be mentioned without causing pain to the relatives and friends, for it is from feelings of sorrow and not of fear that they do not mention the name.

When a youth is about sixteen years of age his elderly male relatives become anxious that he should be initiated into manhood, or, as they call it, "made a young man of." Considerable importance is attached to this ceremony, but the youth often trys to avoid it, for it is anything but a pleasant one to him; but plans are generally made without his knowledge for its performance. Sometimes an early morning dance is arranged, when a sham fight is got up to attract the youth's attention, and then he is caught and carried off. On other occasions, after a consultation on the subject in camp, women being present, some old men go to the youth and ask him to accompany them to go through the ceremony; should he refuse, young men catch him, put the down feathers from ducks among the hair of his head, and carry him by force into the bush while his father and the women cry aloud. When they have carried him some distance from the camp they place a small hard wood wedge on each side of one of the front teeth in the youth's upper jaw, and one of them, with a downward stroke with the pointed end of a throwing stick (*pirrah*), forces the tooth out. A string of opossum fur is wrapped round his body, and he wears a head-dress made with strips of opossum or kangaroo skin, his body and face being smeared with charcoal powder; one or two young men accompany him while in the bush, where he must remain for some time. They play with a wooden instrument called *moola-uncka*, which is a flat and oval-shaped piece of hard wood tied to the end of a long piece of twine, which, when whirled in the air, makes a loud humming noise; it is an amusement to the youths to make the noise, and by it women, none of whom are allowed to go near the youths, know where they are. Those thus treated are called *Tumba*. Sometimes, instead of knocking out the youth's tooth, they smear his body with red ochre (*keerah*). He is then called *Turlurra*. After a while some old men visit the youth's camp, where they are

met by some younger men, who arrange themselves in a row in front of the youth, with their backs to him, and face the old men, whom they ridicule and insult until the old men get into a rage and throw sand in their own faces, and then throw fighting sticks or boomerangs at the young men, which they ward off with their shields (*oolumburra*). The old men then rush forward at the young men, who seize and throw them on the ground, after which the old men retire to the camp, but return later and dance with the youth and his companions, repeating their friendly visits until the end of the ceremony. During the first two days the youth drinks only blood (*carndurra*) from the veins in the arms of his friends, who willingly supply the required food. Having bound a ligature round the upper part of the arm they cut a vein on the under side of the fore-arm, and run the blood into a wooden vessel (*yokudjah*), or a dish-shaped piece of bark. The youth, kneeling on his bed, made of the small branches of a fuchsia bush (*gooyermurra*), leans forward, while holding his hands behind him, and licks up the blood from the vessel placed in front of him with his tongue, like a dog. Later he is allowed to eat the flesh of ducks as well as the blood. When the necessary preparations are made men and women go from the general camp to see the youth smoked. He and one of his companions sit or stand on a heap of green boughs from the fuchsia bush (*gooyermurra*), under which there has been laid dry grass and sticks; this heap is called a *windoo*, their word for an oven. The two youths are wrapped round loosely with a rug, their heads only being uncovered. After the dry grass and sticks at the bottom of the heap are lighted, thick smoke rises through the green boughs and collects round their bodies beneath the rugs. After they have been smoked in this way the rugs are raised over their heads, so as to envelope the whole of them, the smoking continues, the youths placing a finger in each nostril to save themselves from suffocation. After a little of this they are removed from the *windoo*. The hair of the youth who is being initiated is cut short on his head and pulled out of his face, and red ochre, mixed with emu fat, smeared over his body; he wears a necklace of twisted opossum hair. The time this ceremony extends over varies from ten days to a month. The youth's companions take the tooth when it is extracted, and return it to him later with a present of weapons, rugs, nets, and such like. The youth places the tooth under the bark of a tree, near a creek, water-hole, or river: if the bark grows over it, or it falls into the water, all is well; but should it be exposed, and the ants runs over it, it is believed that the youth will suffer from a disease in the mouth.

These tribes are divided into two classes, called "Muckwarra"

and "Keelparra"; the relationship between the two is called "Kengoojah." A Muckwarra must marry a Keelparra, and *vice versâ*. Children belong to the same class as their mother, and when quite young are often betrothed by their parents. It is considered a very serious offence for two persons of the same class to marry, and one that cannot be forgiven. The offenders are spoken of by all as bad, and are generally despised. The loss to them of the love and respect of their friends is a very heavy punishment; illegal marriages are therefore rare.

When a young man has gone through the ceremony of initiation he is allowed to marry, if so desirous, the girl he was betrothed to when young. Accordingly, he asks the parents for her, and they, pleased that their early wishes are to be realised at once arrange for the couple to be married in their simple way. The bridegroom is told by the principal old man in the camp that he can take the girl he wants, and at the same time there is given to him a piece of string with a knot tied in it. Should the bridegroom have a sister whom the bride's brother wishes to marry, two knots are tied in the string by the old man, one at each end of it. This the bridegroom keeps until he is able to hand it to his brother-in-law with his sister or another woman as wife; for he considers it his duty to give a wife to his brother-in-law if he can. The mother of either the bride or the bridegroom makes a camp for the young couple, and tells the bridegroom to occupy it, and when the bride elect comes into the camp she is told to go to her future husband; should she refuse to do so her relatives use force to make her, and they are afterwards considered as married. Although young women are often compelled to marry a man of whom they know little and often nothing, they generally find happiness and contentment in their married lives. Quarrels between husband and wife are rare, and they show much affection for each other in their own way. When a husband returns to the camp after an absence of several days and even weeks, the meeting with his wife appears a cold one. They take no notice of each other at first; he lays down his bundle containing his rug and other belongings, and enters into a conversation with others in the camp, while his wife takes his bundle inside his camp, and when an opportunity offers she joins in the conversation.

Once I was standing near a woman when her husband returned after a long absence. I knew that they loved each other, and asked her why she did not go forward and greet him. She replied sorrowfully, "Black fellow will not let us do like white fellow." She waited until he started for the camp, then she picked up his swag, or bundle, and followed him at a distance. It is not the custom to be demonstrative on such occasions. Brothers and

friends when meeting do not at first notice each other, but gradually draw near, and, when alongside, throw an arm round each other's neck, and so stroll about, saying kind things to each other. Naturally they are most affectionate and courteous, always careful lest by act or word they may be thought unkind, and hurt the feelings of those they love and respect.

They believe that sickness is caused by an enemy who uses certain charms called the *Yountoo* and *Moolee*.

The *Yountoo* is made of a small bone taken from a leg of the dead body of a friend, either before or after burial; it is wrapped up with a small piece of sun-dried flesh, cut from the body of another deceased friend; string made with the hair from the head of a third friend generally serves as the tie. When this charm is required to be used it is taken to the camp where the enemy sleeps and placed in the hot ashes of a fire, with a piece of string tied to it, where it is warmed and then pointed at the person to be killed, a small piece of the bone being chipped off and thrown at the sleeping enemy. The *Yountoo* is taken away, and in about five weeks laid under the surface of the ground, and a fire lit over it which burns it gradually. The person at whom it has been aimed sickens after it has been burnt a little, and dies if the doctor does not suck out the piece of bone which is supposed to have entered the sick person's body.

The *Moolee* is a rough piece of white quartz, oblong in shape, and about 2 inches long; a piece of twine, made of opossum fur, is fastened to one end with some black gum (*nȳnia*). In using these, one is pointed at the person to be killed, and is supposed to enter the body; the other is warmed, then placed in some fat from a dead body and wrapped round with hair from the head. The whole thing is then put in a fire and left to burn slowly; when it warms, the person becomes sick, and dies unless relieved by a doctor. It is believed that the possession of one of these charms aids a man in composing and devising a new corroborree.

Both the *Yountoo* and *Moolee* are treasured as valuable charms, and hidden from view.

A doctor, or *maykeeka*, is a man, either young or old, generally the latter, who has in some way shown that he has the power of curing sickness by sucking from the body of a patient either the chip of bone from the *Yountoo* or the *Moolee*. This appointment is not an hereditary one. The bone chip from the *Yountoo*, when sucked from the body, is thrown away; but the *Moolee* must be thrown into a water-hole, or the river. When a doctor succeeds in sucking either from the body of his patient, the cure is considered certain. He shows something

which he tells the patient and the friends he has sucked from the body.

On one occasion, when I was camped in the Purnanga Ranges, I watched by the light of a camp fire a doctor at work, sucking the back of a woman who was suffering from pains in that part. While she sat on a log a few yards distant from the camp fire, he moved about her, making certain passes with boughs which he held, and then sucked for some time the place where pain was felt; at last he took something from his mouth, and holding it towards the fire-light, declared it to be a piece of bone. The old women sitting near loudly expressed their satisfaction at his success. I asked to be allowed to look at it, and it was given to me. I carelessly looked at it, and then pretended to throw it into the fire, but keeping it between my fingers I placed it in my pocket, when I could do so unobserved; and on the following morning, when I examined it by daylight, it proved to be a small splinter of wood, and not bone. At the time the patient appeared to be very much relieved by the treatment.

During the year 1866 there was rather a large gathering of the aborigines at Karannia, where visitors from Cultowa, Marra, and Neelyambo, places higher up the river Darling, had come down to teach their neighbours a new corroborree. During an interval in one of the performances, a tall young man, who was suffering from a pain in his right ankle, limped into an open space between the dancers and the fires, and was met there by an old man, a doctor. They wrestled together until the doctor threw his patient, and sucked the ankle as the patient lay quietly on the ground; after sucking for some time the doctor rose and walked outside the circle of performers and spectators, and taking something from his mouth threw it towards the moon in the north-east. Returning to his patient he lifted him from the ground on to his feet; the patient stamped his right foot on the ground to test the strength of the ankle, as if he was trying on a new boot, and then walked away without showing any lameness.

I once saw an old woman at Momba trying to cure another one of a sickness in her stomach, by sucking the supposed poison through a string. The patient lay on her back on a rug on the ground, with a piece of string tied rather tightly round the middle of her naked body, with a loose end about 18 inches in length from the knot over the stomach. The woman doctor, squatting by the side of her patient, leant over her and passing the loose end of string through her mouth, sucked it from the knot to the end and spat saliva and blood into a tin pint pot; this was repeated many times, until the poison was supposed to have been sucked through the string from the body.

The large *moolar-uncka*, a wooden instrument before mentioned, is often used while a doctor is operating.

Over-eating, after a successful day's hunting, following as it often does a fast, causes a good deal of sickness from which these people suffer. Headache is a common complaint, and to relieve this a native ties to his forehead a small bunch of heated boughs; the fuchsia bush (*gooyermurra*) being considered best for the purpose. The same remedy is generally used to relieve pain elsewhere; an attendant holds the bunch of boughs while warm to the suffering part, and heats it again when cold.

I have found large doses of castor oil, half-a-pint or more, the safest and most effective remedy, and one that is very agreeable to the taste of the natives, who are fond of fat and oily food. On one occasion I gave between two and three drops of croton oil, in one dose, to a man who some years previously had been cured by a large dose of castor oil, when there appeared to be little chance of his recovery. When a similar attack came on he begged for castor oil, of which I had none in stock, so I gave him the croton oil instead, and with very good effect. Our medicines must be given to them in strong doses to be of any use.

A very sick or weak person is fed upon blood which the male friends provide, taken from their bodies in the way already described. It is generally taken in a raw state by the invalid, who lifts it to his mouth like jelly between his fingers and thumb. I have seen it cooked in a wooden vessel by putting a few red-hot ashes among it. When the aborigines are sick they are always despondent, and say that they are going to die; the sorrowful looks and loud lamentations of their friends around them are sufficient to make any one despondent; and as they lie in their camp naked, excepting the bandages of twine made with the hair of a friendly native, or with fibre or sinews, which are tied round the head and limbs wherever there is pain, they are miserable-looking objects.

A disease called *Tarree* is rather common among them, and generally fatal, though it has been successfully treated by a European doctor. It attacks the middle-aged and old, a hard lump forming in the stomach while the rest of the body wastes away to a skeleton; the lump grows to a great size, causing difficulty of breathing, and at last suffocation. Many of the children have large stomachs, which with several becomes quite a deformity, affecting their health and breathing; sometimes they even pine away and die. One youth under my notice, who suffered much in his childhood from this complaint, has grown up to enjoy fairly good health; but any great exertion causes troublesome breathing and coughing.

It has been reported of the Australian aborigines that they help on to death, and even kill those who are helpless and crippled. I have good reason to believe that such is not the case among these tribes. After witnessing their kind treatment of the sick under most trying circumstances, I am of opinion that they are most kind and attentive to such, and that their patience and sympathy are quite exemplary. It sometimes happens that a change of camp has to be made, and a long journey over a dry country undertaken, with a helpless invalid, who is carried by the strong men, who willingly bleed themselves until they are weak and faint, to provide the food they consider is the best for a sick person.

Some years ago there was at Karannia (now called Mount Murchison) a strong young man whose intellect was weak, and who occasionally had fits of madness, when he would leave the camp and wander alone in the bush without food or covering, and his relatives and friends were much troubled about him, and watched him at a distance as well as they could. Once his old father, a big and powerful man, went out in search of him, and found him wandering near the river; he entreated him to return to the camp with him, when the son turned upon his father with a tomahawk and cut him; the old man returned to the camp, and with tears in his eyes told me what had happened, and begged me to assist him to bring back his mad son before he perished in the bush.

At Momba, an old man named Booingooroo, suffered for several years from violent pains in his head; occasionally his reason was affected by them, and he would wander from the camp and travel long distances by himself in the bush. All showed the deepest sorrow and sympathy; the young men went after him on his tracks, and tried to persuade him to return with them to the camp; if they did not succeed they did their utmost to keep a watch over his movements, and guard him against a death from starvation in the bush. This man, I believe, was suffering from the effects of a sunstroke. Cases of lunacy are very rare. During my experience I have not met with any cases of the kind except the two I have just mentioned.

The burial of a body takes place immediately after death. The feet having been tied together by the big toes, and the hands by either the wrists or thumbs and little fingers, the body is wrapped in a rug and bound round with a rope, and the bundle tied on to a long stick called *moolairee*. Two men are selected as bearers, and one walks in front of the other towards the grave with the body hanging from the *moolairee* stick between them, an end of the stick resting on a small pad stuffed with grass, on the head of each of the bearers. Should

the friends of the deceased have any doubt who caused the death, some questions are put to the corpse, when near the grave, by one of the principal old men in the camp, while it hangs from the stick between the bearers. The old man, with a bough or boomerang, strikes the corpse, and asks such questions as these:—

Were you camped at such and such a place when you were taken ill?

Did so and so kill you?

If the answers are not given by a movement of the corpse it is carried a little farther, until it answers by moving in the direction of the sorcerer's camp; should he be in the camp where the body is it turns round, and when the right name is mentioned it moves forward rapidly, the men running with their burden to the grave. In this way they find out to their satisfaction who they must punish for the death of the deceased person.

It is not improbable that by this custom of immediate burial some bodies are buried before life has left them. A man named Cultekololudger is said to have cured himself, or come to life again before burial. He had been ill for a long time and became very thin. His relatives, thinking he was dead, prepared to bury the body; but when they were carrying it to the grave it made an unusual movement, so the bundle was opened, and the bearers were startled by Cultekololudger asking them why he had been tied up. He is now living near the Barrier Ranges.

There are no fixed burial grounds. A grave 3 or 4 feet in depth is dug at a spot chosen not far from the camp where the death takes place, the digger using the sharp-pointed stick called *pirrah* to loosen the ground, and shovelling out the loose earth with the wooden bowl called *yokudjah*. The bottom of the grave is covered with boughs from the broom bush, and then the bundle containing the corpse, having been separated from the *moolaree* stick, is laid in the grave by two men who stand in it; one of them partly unwraps the bundle so as to cut off a piece of flesh or pull the hair from the head, whichever it is decided to do. Usually a piece of flesh is cut from the thigh of a child, or from the stomach of an adult. At the burial of a very small and thin man which I witnessed, there was a discussion at the grave as to which should be done, and it was decided to pull some hair from the head, rather than take any of the flesh. This was done by one of the men in the grave, who pulled out several large locks of it. At some burials several men stand by the open grave and cut each other's heads with a boomerang, and hold their heads over the grave so that the blood from the wounds falls on the corpse at the bottom

of it; some earth is then thrown in, and if the deceased was highly esteemed a second bleeding takes place. Some sticks are placed over the corpse, and above them one long one has its ends driven into the solid ground at the head and foot of the grave by a man jumping on it: that is done to prevent the wild dogs getting to the corpse.

During the ceremony of burial there is much crying and wailing, especially by the women, each one crying in a loud tone the word signifying their relation to the deceased, commencing with a high note and gradually lowering their tone in a shaky voice, repeating the word while they have breath to spare, dwelling long on the last syllable of the word. The words most frequently heard are *ammuccī* (mother), *gumbidgī* (father), *whimberrī* (child), *matoogī* (friend). This wailing continues over the grave for some time after it is filled in, and at the camp for days afterwards; when one of the women begins to wail, others join, and the mournful chorus can be heard throughout the neighbourhood. The women generally cry at the camp or the grave each day for a week or more after the burial as the sun is setting.

The piece of flesh cut from the dead body is taken to the camp, and after being sun-dried is cut up into small pieces and distributed among relatives and friends of the deceased: some use the piece in making the charm called *Yountoo;* others suck it to get strength and courage, or throw it into the river to bring a flood and fish, when both are wanted.

After a death in camp, all leave it and pitch their camp on another spot, which is sometimes not far distant. The rugs, weapons, nets, &c., the property of deceased, are hung in a tree near to the camp for about two months, and are then washed and used by some of the relatives.

Most of the women wear mourning, and the nearest relative generally covers her head with white plaster made of calcined selenite or gypsum, and smears the same over her face and body. The head-covering, which is a thick cake, wears a long time; it is fixed to the head by the hair and a small net, which is generally laid over the head before the cake is plastered on. It requires patching only occasionally; but the thinner coat on face and body soon crumbles away, and has to be renewed every day. After wearing this for some months it is allowed to crumble away, and is not renewed. In the case of a widow, she is told by her late husband's brother, or her mother, when she may cease wearing her mourning, and the brother-in-law is sometimes allowed to take her as wife, though he may already have one. Some men are allowed two wives, but the rule is to have one only. I have seen an old woman wearing a patch of white

plaster over the crown of her head, as mourning, after the death of a favourite dog.[1]

An ordinary grave is covered by a low mound of earth, a few stout pieces of dead timber are laid upon it, with a heap of green boughs over them. Some have a low brush fence round them, which has an opening on one side to let the wind in, as they say, and some large egg-shaped pieces of white plaster laid round the grave between the low mound and the brush fence. The most elaborate one that I have seen was covered with a small bough shed, about 8 feet square and 4½ feet high, which had a large opening on one side; the ground outside was cleanly swept, and the green boughs on the mound inside were covered with whitewash; some women, at a camp near, attended to this grave, bringing green boughs to replace those withered, whitewashing and sweeping.

Some months after a death the brother or near relative of the deceased starts off to find the man accused of causing the death, and to fight him; other men, young and old, accompany him. When he meets his enemy he fights him with spears and boomerangs; should he wound his enemy his craving for revenge is satisfied, and he calls out *ow-oo-ta* (enough), and the fight ceases. A grand dance, or corroborree, follows in which all join and make merry together. Should he happen to kill his enemy he and his companions bury the body. It is said that they sometimes cut off the head and hold it up towards the camp to enrage the deceased's friends, and a general fight is the consequence. This, I think, seldom happens; for, as a rule, a very little fighting satisfies these people: a few blows and a little blood are enough to do that, and make them friends.

Discussion.

The President observed that few departments of anthropology were so pressing just now as the collection of materials relating to the customs and characters of races, which were becoming either extinct or, as Mr. Bonney expressed it, "spoilt" by civilisation; and such materials could only be obtained in a satisfactory manner by those who had the opportunity of living among them for a considerable period, as such lengthened observation often corrected erroneous impressions, derived from superficial inspection. Mr. Bonney's communication was therefore welcome as an important contribution to this branch of knowledge. Low as the Australians were generally assumed to be in the scale of society, they evidently had a very complex and severely enforced code of unwritten

[1] There are generally a large number of dogs about a camp, which are used in hunting the kangaroo and emu, and are very kindly treated. The dog and its master are often to be seen sharing the same rug or blanket on a cold night.

etiquette, which served to keep up among themselves the mutual respect and order necessary to carry on the duties of social life. As this code and many of their customs evidently differ in different parts of the country, and among different tribes, it was desirable that all authentic details should be collected and recorded without delay.

Mr. PARK HARRISON also made some remarks on the subject of the paper.

The AUTHOR, replying to a question asked by the President, said that there was a decided curl in the hair of the aborigines of the river Darling, and called attention to a specimen which bound a native tomahawk exhibited on the table. In answer to the question, what decided the fate of the new-born children, and whether any preference was shown for the male sex, he replied that the fate of the children depended much upon the condition the country was in at the time, and the prospects of the mother rearing it satisfactorily, no preference being shown for the male sex. Being asked to give some information about the religion of the people, the author suggested that the subject had better not then be entered upon, as it would occupy too much time; but he hoped to have an opportunity, on a future occasion, of giving some information about it, with some other interesting information about the same people.

The following paper was then read by the author:—

On the DISCOVERY *of some* WORKED FLINTS, CORES, *and* FLAKES *from* BLACKHEATH, *near* CHILWORTH *and* BRAMLEY, SURREY.

By Lieut.-Colonel H. H. GODWIN-AUSTEN, F.R.S., &c.

[WITH PLATE IV.]

I HAVE the pleasure to exhibit to the meeting some worked flints and rough flint implements, all obtained within a small area, where I do not think they have been found before.[1] The subject is, I think, sufficiently interesting to place on record with a few notes regarding them.

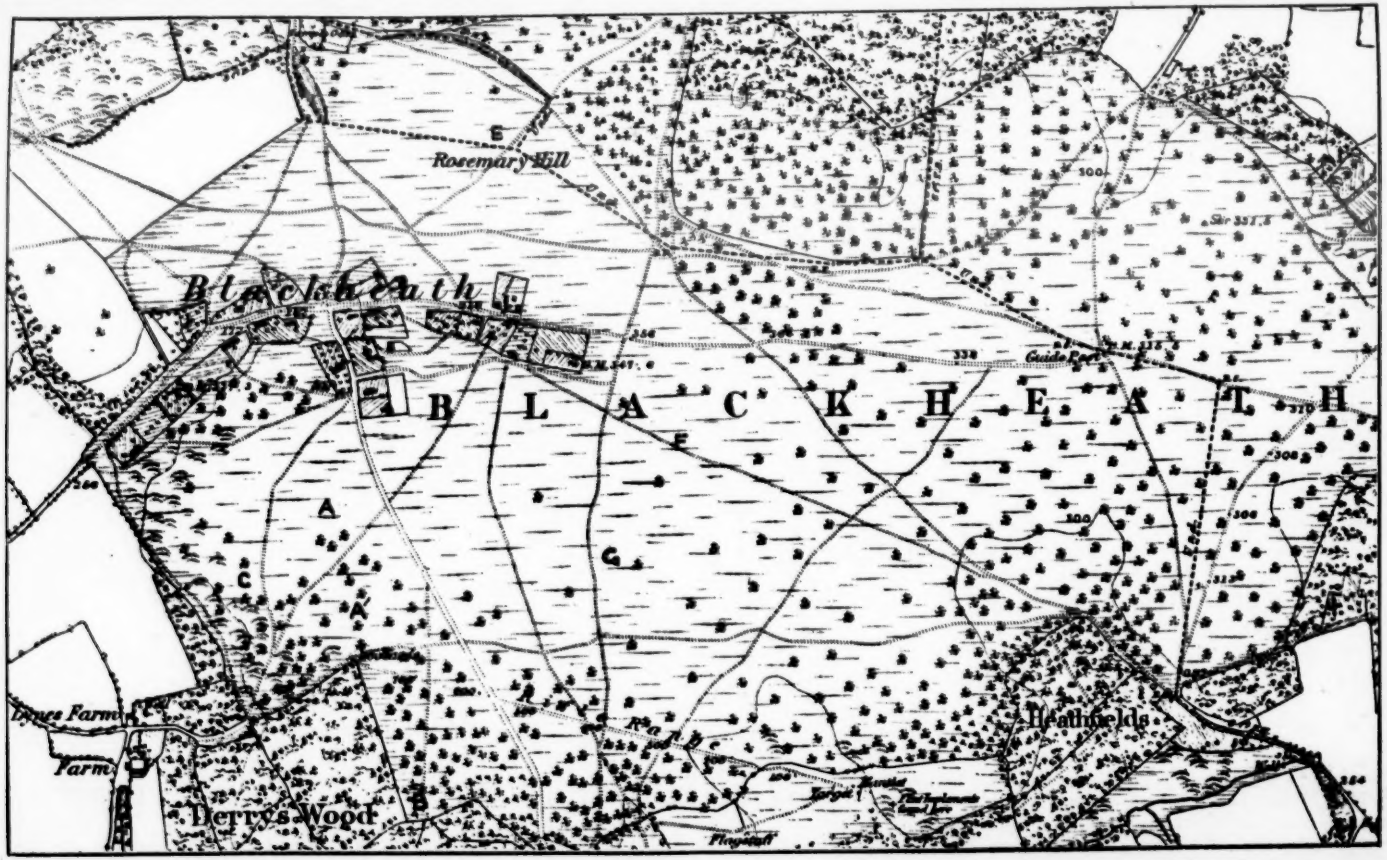
In the summer of 1881, when walking over the heath near Derry's Wood, not far from the village of Blackheath, with Mr. W. Weston, I noticed a piece of flint lying on the surface, which I picked up, remarking at the time it was curious to find it where no signs of former cultivation existed, on a denuded surface of

[1] I am told by Prof. Rupert Jones, that Major Cooper King has found flint implements at Postford, which is also in the same neighbourhood; but I have been unable to see his paper in the "Journal of the Berkshire Archæological Society." Major-General Pitt Rivers also found them in this locality.

the Lower Greensand so far from the chalk. This led to our looking for more, and we soon found several pieces, some of which struck us as bearing marks of artificial fracture. The ground had been very lately worked over for the ironstone so much used in the district for road repairs. The result of our further search that day was some thirty pieces, large and small, similar to those I now exhibit. I have paid two more visits to the place with Mr. Weston, and he has been able, living at Bramley, to visit the place on other occasions, so that the greater number of specimens have been found by him, and he has lately been able to get from one of the workmen employed the best flint implement of the collection, and others have turned up from the same source. I have on the map (Plate IV) marked off the sites where A, A′, B, and C represent the spots where the flints are most abundant. Many pieces, especially from near B, appear as if they had been subjected to the action of fire. The position is a commanding one, extending for about 5,000 yards from A on the north to B along the ridge, which is the highest part of the heath here—a very dry, elevated ridge, the ground falling on all sides, save the south, and it would have formed an advantageous position for a settlement in early times, when the lower grounds were probably densely wooded and more marshy than now. No cultivation could have been carried on here, on so dry and sterile a soil; for the idea of the flints having been brought in with manure had at first struck us, but the limited and local distribution of the numerous pieces evidently formed with design by man, and not accidentally broken by natural causes,[1] disposes of this objection; besides the fact of their not being found anywhere save along the ridges, and there at isolated spots, and one on the west side of its slope. Several of the pieces we took out of the sides of the recently opened trenches, and were from ½ to 1 foot below the surface of the present heath and heather; the rest lay scattered on the bare, sandy, lately excavated surface, and were most conspicuous among the pieces of the ironstone out of the beds *in situ*. I have thought it best to keep and bring here every piece of flint, large and small, that we have found, because it shows the proportion of evidently worked pieces to the rougher examples; it proves, I think, that the rough scrapers, &c., were manufactured on the spot, the race who used them bringing their masses of flint from the downs to the north, distant from Blackheath about two miles in direct line.

A rough analysis of these flints gives the following result. Specimens A, B, and C were collected and sent me by Mr. Weston; D were found by us together. Roughly sorting those pieces which bear the best signs of workmanship, we have—

[1] Notwithstanding that among those found are many with natural fracture.



MAP OF THE COUNTRY AROUND BLACKHEATH, SURREY, SHOWING SITES WHERR WORKED FLINTS HAVE BEEN DISCOVERED.

	Showing signs of workmanship.	Rough.	Small pieces and chips.
A	7		
B	15	46	150
C	17		
D	14	32	48
	Total 53	(78 +	198) = 276.

or close on 20 per cent. of worked to the rougher pieces. But among the smaller pieces there are several that have evidently been struck off the core in process of forming the implement in hand, thus indicating pretty clearly that here the people made them on the spot, perhaps one of the oldest settlements in the south of England, which from its position would be less changed by the effects of denudation than many others in the neighbourhood, lying lower, near the drainage lines of the country; so that it is quite possible, while these flint implements have lain gradually buried by drifting sand, and the growth of moss and heather, the neighbouring streams have cut many a foot deeper into the valleys, and altered much the old configuration of the country, destroying and shifting all similar remains of the race who depended for their existence on the use of flint weapons and implements.

We have since again examined the heath in other directions which I indicate on Plate IV, by the letters E, F, G, and at all these spots we came on similarly broken flints, and invariably confined to a few square yards on the top of the low knolls; a very few were found towards the lower ground—here and there a single piece, and in most instances they were lying on the course of small surface drainage lines, down which they could be gradually carried during heavy rain.

On E, the high point north-east of the village of Blackheath, we found 135, all scattered close together. On sorting them roughly 60 were rough and angular, 75 were very flat, flaky pieces; none, however, were sufficiently well marked to retain, but are like pieces struck off when fashioning an implement. At F and G similar pieces were found lying on the surface of the sand. At G, 30 were rough, 29 were small flakes. At F there were a few only, and flakes predominated. From the labourer digging the ironstone we have obtained other very well-formed

flints, and he had some other larger unworked pieces. He had also kept two very round natural flints, weighing about 1 lb., which may have been used as hammers for beating and softening hides or pounding grain, &c.

Mr. Weston has remarked on the small size of these worked flints, when compared with those figured by Mr. John Evans in his work; but any remarks on the flints themselves I must leave to those who have made them their especial study. I myself am not sufficiently well acquainted with similar remains from different localities and of different age. It is very possible that the small pieces were used to tip the arrows for shooting birds and small mammals—just as the Dafla and Bhutea, who still use the bow, have lighter and smaller bows and small arrows for this purpose. These latter may often be seen sticking out of a high bough of a tree where a bird has been missed, so that a constant supply of these arrows would be required by both men and boys, and the latter use them most.

Description of Plate IV.

Map of the district referred to in the foregoing paper, showing the sites where the flints were discovered. From the Ordnance Survey Map (Sheet 32, Surrey): Scale, six inches to one mile.

Discussion.

Mr. R. Meldola stated that he was familiar with the neighbourhood referred to by Colonel Godwin-Austen in his paper, and although he had frequently searched Blackheath in a casual way he had been unsuccessful in finding worked flints there, but he had found numerous flakes and worked chippings or scrapers in the fields round about Bramley and Wonersh. The most perfect implement that he had seen from that locality was a lozenge-shaped neolithic arrow-head, found by his friend Mr. F. Evershed, in a field near Snowdenham Farm, Bramley, about two miles south of Blackheath. [This specimen was exhibited.]

Mr. J. E. Greenhill observed that the peculiarity of the flints exhibited by Colonel Godwin-Austen seemed to him to be that, while undoubtedly a fair percentage of them bore traces of manipulation, they had not the general character of the neolithic flakes, knives, and scrapers. He suggested as probable that they might be of a more recent age than that commonly assigned to the neolithic in England; and he also hinted that flint was used, even in recent times, for many of the simple daily uses to which we now apply the ordinary steel pocket-knife. It would be exceedingly interesting if reliable data could be obtained as to the use of flint flakes, for cutting or scraping purposes, during the early part of the nineteenth century, before pocket-knives became a necessary

part of every one's equipment. From personal observation he could state that such a use has not entirely died out, and he would be exceedingly indebted to any one who could furnish him with any additional facts, which may have come under his notice, corroborative of this statement.

Mr. F. G. H. Price said he would be glad to know if the author could inform him whether there were the remains of any earthworks, entrenchments, or forts upon the hill-tops he had described.

Mr. W. Bowman, F.R.S., Mr. A. L. Lewis, and Mr. Park Harrison also took part in the discussion.

The Author, in reply to certain questions, said he had not made any attempt to fit any of the flakes together upon the cores, as had been successfully done with some collections of flint implements collected on spots where they were manufactured. The ground at Blackheath had been so turned over and disturbed that only a few now lie on the surface; the majority are buried again with sand. With reference to the time since they were fashioned, it must be considerable, as they lie quite a foot below the present surface, evidently an old one, covered with sand, and the darker mould in which the present heather is growing. There are no signs of earthworks on the hill-tops, or in the immediate neighbourhood.

The Director then read the following paper:—

Notes *on* Stone Circles in Brittany.

By Admiral F. S. Tremlett, F.G.S.

[With Plate V.]

During the summers of 1878 and 1879 the late Mr. James Miln, F.S.A.Scot., discovered in the commune of Carnac three low raised circular mounds, which he explored, namely, Nignol, Coët-a-touse, and Kerhouant, the latter being situated near the river Crach. The former contained stone circles, which were in a good state of preservation; the latter, on the contrary, was in a very dilapidated state, yet it was easy to identify it as belonging to the same system. The three had *presumably* been places for cremating the dead, as also for depositing the urns; the greater part of the latter were found enclosed in cists of quartz, covered over by a slab of schist, neither of which stones is to be found in the district.

Nignol is situated near the high road leading to Carnac, at about two miles distance from that place. This tumulus was about 4 feet high, its diameter 50 feet; it enclosed two concentric rings, or stone enclosures, which had apparently been a place where

cremation had taken place. The diameter of the outer circle was 25 feet; it is composed of eight courses of *dry* masonry, its exterior being regularly and smoothly walled, but its inner side had been left quite rough, the stones projecting. The inner circle, which is slightly oval, consists of heavy, rough, and weather-worn blocks of granite, coarsely put together; its diameter is 12 feet; the thickness of this masonry is rather more than 30 inches—in fact, it is difficult to measure it. For plan and section of the circles see Plate V, figs. 1 and 2.

Exterior of Circle at Nignol.—There was found to the south-east a cist which contained an urn, the paste of which was fine. Its exterior had apparently been coated with plumbago. It contained ashes, calcined human bones, pieces of charcoal, an iron nail, a piece of scoria, and a flint chip. At about 3 yards' distance and near to the outer circle two other urns were found, one having been placed on top of the other, which latter had a circular granite cover fitted to it. The upper one was similar to that already described, but the lower one (which was broken) was very inferior, its paste being coarse; it was hand-made and bore the impress of the potter's fingers. Its contents were fragments of schist and granite, ashes, calcined bones, charcoal, a long piece of iron, as also a highly-polished, black, almond-shaped pebble. Outside of these urns there were two flint flakes, each having on it the mark of the bulb of percussion; one was of grey and the other of yellow silex. A little to the east of this spot, and near to the circle, there was found a fourth urn, also in a cist; it was of fine paste, and seemed to be coated with plumbago. It was quite full of fine earth, ashes, calcined human bones, small pieces of granite, and the fragments of another urn of the same type. To the north-east, at about 12 feet from the fourth urn, there were found the fragments of *several* black urns, together with compact *indurated* human calcined bones and ashes, which were held together by innumerable small vegetable fibres, or roots. As some persons had been previously digging about this spot it is not improbable that in so doing they broke the urns which contained the above, as they were not in cists; only one stone hammer was found to the north of the circles.

Between the Circles.—To the south an urn was found lying on its side; when withdrawn, it was found to have been surrounded by four smaller ones, the latter being upright. The large urn contained ashes, fine earth, calcined bones, charcoal, small pieces of granite, a shard of pottery, and the half of a bronze bracelet, coarsely fashioned and having apparently been exposed to fire. The seventh urn was smaller and contained ashes, calcined bones, some fragments of granite, a piece of curved iron, and

two pieces of wood, being the parts of an armlet, which fell to dust almost immediately. The eighth urn was similar to the preceding one, and it contained also ashes, calcined bones, charcoal, and a small piece of iron. The ninth urn was much smaller; its contents were the same as the previous one, but with the addition of a canine tooth. The tenth was of the same size as the sixth, and contained fine earth, ashes, and calcined bones; it had evidently been previously cracked and repaired before being deposited, as holes had been drilled through its upper part, and in one of these there remained a piece of iron wire, which afterwards fell to pieces. On the west side a fine flint chip and the halves of a granite mortar were found. The digging was continued to a depth of 2 feet, or until the granite rock was reached; great quantities of burnt earth, ashes, and some fragments of iron, were found here.

Within the Inner Circle.—This part consisted almost entirely of ashes and fine particles of charcoal, together with burnt earth. On digging down to the rock the fragments of a small red patera, some shards of fine pottery, and the half of a granite mortar were found above in the humus, and near to the surface there was discovered a part of a Roman amphora. It would almost appear that the dead were here cremated, the granite blocks of the inner circle having been burnt perfectly red, and become friable through the effects of intense heat. The great quantities of burnt earth and charcoal lead to this conclusion; it is to be remarked that the urns which had not been placed in cists were all broken through the superincumbent pressure.

Circles at Coët-a-touse.—The circles at Coët-a-touse are near the village of that name, and greatly resemble the previous ones. The mound was nearly 5 feet high, its diameter at the base 55 feet; it had, unfortunately, been interfered with by the villagers when they required stone to repair a wall. They stated that they had found only shards of pottery and some flat, polished, circular stones. Mr. Miln found on the exterior a stone mortar and a piece of granite having cup markings on it, both of which had been thrown away by the villagers. Permission having been obtained, operations were commenced, the results being practically the same as at Nignol; the circles of both had been similarly constructed; there was also a layer of ashes and fine charcoal down to the rock, besides great quantities of the refuse of bronze castings, also some calcined bones. Outside of the circles there were three cists containing urns in which were calcined bones, &c., a granite quern, two stone hammers, a chipped flint scraper, a saw of yellow silex, the half of a small celt, a whorl, and a polished pebble. On the east there were fragments of several urns, some of which had been blackleaded.

Between the circles there were two urns of a grey paste, apparently coated with plumbago. They contained calcined bones, charcoal, ashes, and a small polished pebble. Alongside of it there was a similar urn ornamented with the cup markings, and having precisely the same contents, with the addition of a molar tooth of a young person. At a little distance there was a larger urn similarly ornamented; it also contained a molar tooth, some bones, among which was a part of a skull, one of the vertebræ, and a radius. There were also found here quantities of the refuse of bronze castings, and at a little distance to the north a stone hammer and an implement of schist.

A large circular dish of coarse paste with radiating lines was also found here; it was in good condition.

In the central part there were found several stone hammers for chipping, some of which had been broken, several flint chips, a flint scraper, the half of a whorl, together with ashes, fine charcoal, and burnt earth.

The whole of the urns, and other things which were found in these circles, are now in the museum at Carnac, which was erected after Mr. Miln's death, at the expense of his brother.

It will, perhaps, be somewhat difficult to determine the *exact* period when these circles for cremation were constructed, but I may remark that Roman remains, pottery, bricks, tiles, and querns have been found not far from Nignol and Coët-a-touse, as also that a brass coin of Antoninus was found near the former; and that a part of a Roman amphora was embedded in the earth which covered the circles at Nignol; indeed, there are proofs in every direction of the Roman occupation.

The Circle of Kerbascat.—A circle of the same description was discovered at Kerbascat, near Pont l'Abbé, Finistère, by M. P. du Chatelier. It resembled in every respect that at Nignol; but its exterior circle was more carefully and much better finished. On getting inside of this enclosure the workmen came across large blocks of granite, which they at once tossed outside as being in their way, they little thinking that there was an inner circle, or that they were destroying the monument. M. du Chatelier was astounded on visiting Nignol, when he became aware of the irreparable mischief committed at Kerbascat.

The contents of this circle were very similar to those before alluded to, the urns being in cists. I believe the circle at Kerbascat to be more recent, the shape of the urn, and especially the ornamentation, showing a more advanced state of art (Plate V, fig. 6). There are important Roman remains near Pont l'Abbé.

At Plougoumelen (four miles from Auray) there are seven low tumuli, which somewhat resemble those at Nignol, each having a similar outer circle of dry masonry, but *no central one.* The

Rev. W. Lukis, F.S.A., opened one which contained in its centre a thin bronze bowl, standing on its matting and surrounded by calcined bones; its interior was filled with fine earth, in which were found two iron rings of about an inch in diameter. M. Réné Galles, in 1872, opened a similar tumulus here surrounded by the usual masonry circle; it had a chamber on its north side, and 5 feet below the level of the soil; it contained two heaps of bracelets, twelve in each heap, a torque, and a finger-ring, all of bronze. A second low tumulus was opened by him, its height being 4 feet, and enclosed by a masonry circle; in its centre there was a square of dry masonry, which was continued down to 5 feet below the level of the soil. In its lower part there was a crypt containing a copper urn (upright), having handles rivetted to it, and which was covered over by an inverted copper dish; the whole was surrounded by charcoal, a thick layer of the same was over it; the interior was quite filled with incinerated bones. M. Galles examined some others, but he found that they had been previously opened; each of these tumuli is enclosed by a similar structure to that at Nignol. There seems, therefore, to exist some analogy between them, which would almost lead to the inference that they had been constructed during the earlier iron period.

At about 200 yards to the north of Nignol, and amid the heather, there are two stone *enclosures* which, until 1880, were covered with earth to a depth of 4 feet, and overgrown with gorse and stunted pine trees. Mr. Miln, believing, from the elevation of the soil, that something must be there, set to work, and soon brought to light two stone enclosures of about 60 yards long each. These enclosures were formed of upright stones, nearly 2 feet high each; their sides were parallel, and the ends were rounded off; their form was that of a parallelogram. The nearest one to Nignol, when cleared out, was found to have at its east end a place for cremation of the *beehive* shape, and corresponded exactly with those discovered by Canon Greenwell in Yorkshire, and which are mentioned in his work, "British Barrows," pp. 448, 496, and 506. The western end of the enclosure was cleared to the level of the rock; there were here blocks of granite in disorder, but they and the rock itself had been much reddened from the effects of fire.

The second enclosure, which is but a short distance beyond, was in a far better state of preservation, the stone enclosure being complete; at its north end there was discovered a beehive for cremation in a really good state, and near to the enclosure, on its east side, at about half-way from the ends, a smaller beehive was brought to light. Canon Greenwell, in his work mentions "that in no case did he ever find the slightest

vestige of any bones or remains whatever in the beehives, so perfect had been the combustion." This is precisely the case in the French ones; not even a shard of pottery was discovered in these great enclosures, which contain sufficient space to accommodate 400 persons. To the north of the latter enclosure, but without its boundaries, there are some small menhirs standing.

Up to the present time I have been unable to discover that similar places for cremation have been found in France, and although the "beehives" were occasionally found by Canon Greenwell, in no case does he describe them as being situated *in considerable stone enclosures.*

The name of the place where these enclosures are situated is Mãné-Iy-Yeh.

Description of Plate V.

Fig. 1. Ground plan of stone circles at Nignol, near Carnac, Brittany.

Fig. 2. Section of ditto along the line *AB* in fig. 1. In these two figures *CD* represents the outer circle of stones in seven courses of dry masonry; *EF* the inner circle of rough heavy blocks of granite. In fig. 1, *G* shows where previous explorers had been digging; *H* indicates the position in which a cist was found with the urn fig. 3; *I* where two urns were found, of which one is represented in fig. 4; *J* where another urn was deposited; *K* where the urn fig. 5 was found; and *L* where five urns in a cist were discovered.

Figs. 3, 4, 5. Cinerary urns found within the stone circles at Nignol (fig. 1). These urns contained calcined bones and ashes. They are now deposited in the museum at Carnac.

Fig. 6. Cinerary urn found within a stone cist at Kerbascat, near Pont l'Abbé, Finistère.

DISCUSSION.

Mr. A. L. LEWIS said, though he had some years ago been very near the remains described by Admiral Tremlett, he had not seen them; but from the particulars given in the paper, he should suppose them to be mainly of the bronze age. The structures were of an unusual character, and it was fortunate they had not all been destroyed, without careful observations being taken and recorded.

Mr. F. G. H. PRICE had listened to the paper with much interest, and was disposed to consider these cremation circles of comparatively late date. It was difficult to speak positively of the pottery

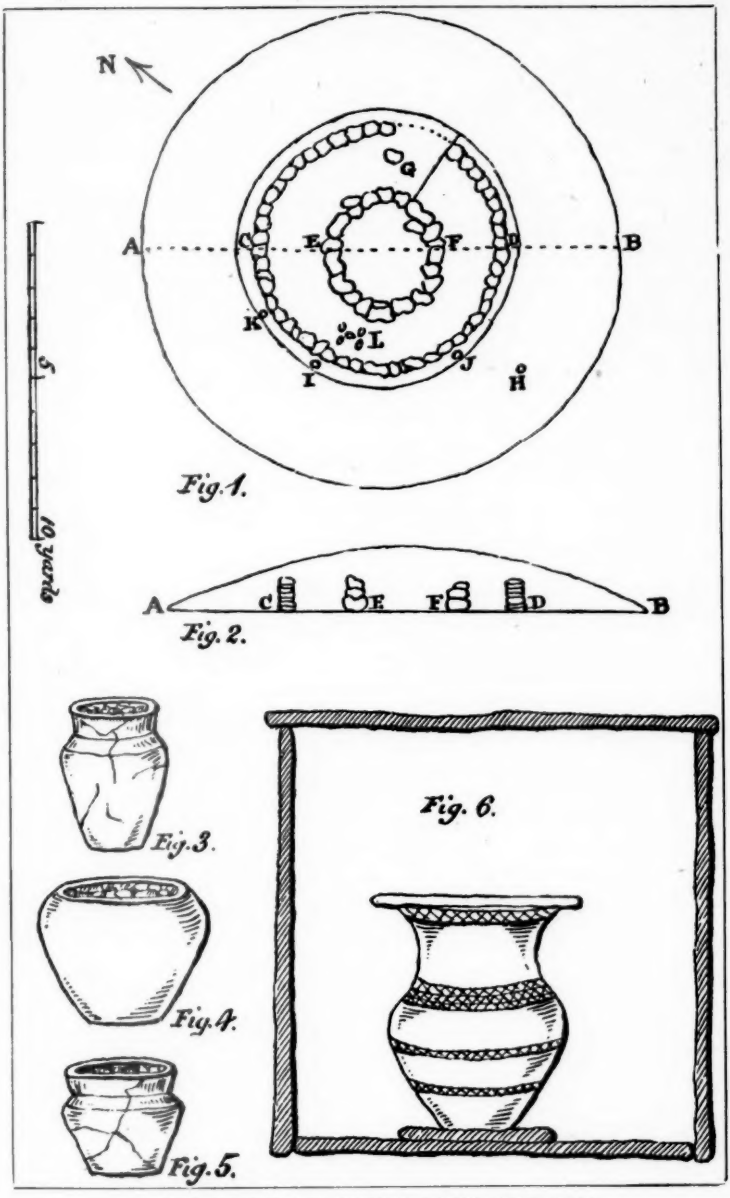


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

STONE CIRCLES AND CINERARY URNS, BRITTANY.

in the absence of specimens, but the shape of the urns is what we should describe, were they found in England, as of the British period; the author, however, distinctly stated that the paste, with one exception, was fine, and coated with plumbago, which is unlike British or Celtic pottery. His descriptions suggested a resemblance to the smother-kiln pottery of Upchurch, which is black, and has a metallic appearance. Then, again, in one of the urns, an iron nail was found; when excavating in the Romano-British cemetery at Seaford, Sussex, several nails were met with—in fact, in every interment; so taking this with the description of the pottery, and the fact of a coin of Antoninus being found, the speaker would infer that these circles, or at any rate the pottery, was of the Gallo-Romano date, corresponding with our Romano-British period, of probably the third century. One of the urns had a decided Etruscan appearance, and was much like those from Cyprus, both as to the shape and ornamentation.

The following paper was taken as read:—

The NATURE *and* ORIGIN *of* GROUP-MARRIAGE.

By C. STANILAND WAKE, Esq.

THE existence among the Australian aborigines of a remarkable system of marriage, approaching very nearly to the "communal" marriage which is supposed by some writers to have been at one time universal among the Polynesian Islanders, has now been fully established.[1]

In accordance with that system an Australian "has the rights of a brother, and he acknowledges the duties of a brother towards every man of his own group, and he can no more marry a woman of a group which is 'sister' to his own than we can marry our own sister."

The reality of group-marriage being admitted, I propose to show its origin. According to Mr. Fison, the "simplest, and probably the earliest, form of the class division among the Australian aborigines is the separation of a community into two intermarrying classes, each having a distinctive title, which is taken by every one of its members." The original classes are now generally subdivided into four, but the law of exogamy is still strictly enforced, and the rules of descent remain the same. Descent was originally, and usually is still, traced through female ancestors throughout both the classes and their subdivisions. All the members of the same class, therefore, trace their descent

[1] "Kamilaroi and Kurnai," by Lorimer Fison, M.A., and A. W. Howitt, F.G.S., 1880.

to a common female ancestor. It is evident that, theoretically at least, such persons form a group of kinsmen, and this group answers to a gens as defined by Mr. Morgan. This writer says a gens is "a body of consanguinei descended from the same common ancestor, distinguished by a Gentile name, and bound together by affinities of blood." He adds that the gens originated in three principal conceptions: "the bond of kin, a pure lineage through descent in the female line, and non-intermarriage in the gens." These three conceptions are embodied in the Australian class, and, as embodied in the rules of descent and marriage, they prevent the intermarriage of near relations, that is, of persons belonging to the same class, or totemic subdivision.

We can thus judge of the social condition of the community from which the present tribes have been derived. As in accordance with the laws of marriage, the kinsmen of which each of the two original classes was composed could not intermarry, marriage of all the males of one class with all the females of the same generation in the other class must have been the rule. By the operation of this rule, combined with group relationship, the members of any particular grade of one class would, as consanguinei, be brothers and sisters to each other, but husbands and wives to all the members of the same grade in the other class. The practical result would be that all the men of each class would have their wives in common, and all the women of each class their husbands in common. Whether the number of persons in the several groups was great or small the result would be the same. When the system had been in operation through many generations, each class or group would embrace many families; but at an earlier date it would consist merely of the immediate descendants of the common female ancestor. In this case all the sons of each family group would be the husbands of all the daughters of the other family. Assuming that the sons of each group retained their own original habitation, their sisters would take up their abode in the family of their husbands, the females thus exchanging places; but if both families resided in a common habitation there would be merely an exchange of *sides*. Such was probably the original practice; as it would seem to be at the present day in the New Hebrides. According to the Rev. Mr. Codrington, as quoted by Mr. Fison, among the Melanesians any islander can easily learn which is his "side of the house" (*i.e.*, class), among the people of any island other than his own.

Group-marriage, whether it is associated with descent through females or through males, is subject to certain regulations which have the result of preventing the intermarriage of persons nearly related by blood. It would seem, therefore, that two principles

underlie that system—principles which, indeed, are embodied in the practice of all uncultured peoples in relation to marriage. They are, *first*, sexual conduct is natural, and therefore permissible, to all—implying a sexual *right* in every individual who attains the proper age; and, *secondly*, sexual unions between persons within certain degrees of consanguinity are criminal, and therefore not to be allowed. The operation of these two principles would, under the conditions of Australian social life, necessarily result in some such system as that described. It would not be sufficient to declare that every man should have a wife, and every woman a husband; for if the man or the woman were away from home they would cease, practically, to be husband and wife, and, according to the first principle stated, they would be entitled to find others to temporarily fill those offices. Moreover, owing to warfare, infanticide, or other causes, the number of men and women might become unequal, or an individual might be unable for a time to perform his or her part of the marital engagement, in which case strict compliance with the sexual right would require that some men should have more than one wife, or some women more than one husband. If all those causes operated, under the restrictions directed against consanguineous marriages, among a race of a low degree of culture, who fully recognised the absence of impropriety in sexual conduct with the attendant sexual rights of individuals, and under the social conditions of a migratory or nomadic people, the development of a system of group-marriage would be certain.

That which we have supposed to have been the practice in the primitive intermarrying groups was, until recently, and perhaps is still, to be met with in a modified form as an actual custom among the Polynesian Islanders. Mr. Morgan states that when the American aborigines were discovered the family among them was in *syndyasmian* form, which is founded upon marriage between single pairs, but without exclusive cohabitation. He affirms, however, that the syndyasmian family had arisen from the punaluan family, and he adds, when replying to Mr. McLennan's criticisms, that in the Turanian and American (*Ganowánian*) systems we find two forms of *punalua*—one founded on the brotherhood of the husbands, and the other on the sisterhood of the wives. In each group the men were polygynous, and the women polyandrous. The punaluan system is thus practically the same as group-marriage. The group formed in either case is, however, very different. The Australian is much the larger, as it embraces all the members of a class, while the Polynesian affects only the persons immediately concerned. Each punaluan group appears to be formed independently, and without conferring any special marital right

on the children belonging to it. This is totally unlike the Australian system, which recognises individuals only as members of certain groups which are perpetuated by descent through its female members. The latter may, therefore, be described as hereditary punalua; the terms *brother* and *sister*, according to it, comprising all the members of a particular grade of the same generation, and therefore having a tribal, rather than an individual, significance.

By what steps the Australian system has reached its present form is doubtful. The two original intermarrying classes would be perpetuated by descent through females, combined with prohibition against the intermarriage of those who, by the possession of the same class name, are known to be descendants of a common ancestor. The introduction of four classes instead of two did not affect the laws of marriage and descent; but it was attended by the curious result that a woman and her children belong to different classes. For example, the daughter of Ipatha is Butha, and not Ipatha, as it would be if children took their mother's name. Mr. Fison sees in this fact an exchange of children between the classes, as to the reason for which he appears to be undecided. He thinks it may be that exchange "became a fixed idea in the native mind when the two classes were subdivided, whence it seemed to be an absolute necessity that the sub-classes also should exchange their children." He suggests, however, that instead of such a subdivision there was an amalgamation of two distinct tribes, each consisting of two exogamous intermarrying classes, and that the amalgamating classes exchanged wives but retained their own children. This very ingenious explanation is consistent with the position assigned by the Australians to their women, who are valued as creatures of passion and child-bearers, rather than as wives; but it is not satisfactory, seeing that it is inconsistent with the laws which govern descent. The real solution of the difficulty would appear to be as follows. In accordance with the principle which recognised the sexual rights of every member of the two intermarrying classes, all the individuals in each class who had attained the age of puberty formed a single group, the members of which were considered the husbands or wives of all the members of a similar group in the other class. By the operation of the rule against consanguineous marriages, however, those sexual alliances were restricted, among tribes having descent in the female line, to the children of a man and his sisters, or of a woman and her brothers. In other words, a man could be the husband only of the daughters of his father's sisters or of his mother's brothers; because they did not belong to his own class. The persons with whom a man or woman can marry

are now distinguished by the title of *cousins* from the other members of the grade, who are called brothers and sisters. It is uncertain whether the title of cousin was introduced before or at the same time as the formation of the four classes. If the latter were the case, the result, while there were only two classes, would be that if all the males of one class were the husbands of all the females of the other class, a man would stand in that relation not only to his mother-in-law and his father's sisters, but also to his own daughters, both lineal and collateral. As Mr. Fison points out, that fact well explains the mutual avoidance or ceremonial politeness practised between mothers-in-law and sons-in-law among the Australians and other uncultured peoples. Mr. Fison remarks that amongst the Fijians the same mutual avoidance is seen between brother and sister, whether they be children of the same parents or not. The Fijian shuns his sister, and the Australian his mother-in-law, because the woman is *specially* forbidden to him, and her touch would be pollution. There does not appear to be the same absence of familiarity between parents and children, but among the Australians marital intercourse between a father and his daughter would, while there were only two intermarrying classes, be specially forbidden. After the introduction of two fresh classes such an alliance would be rendered impossible by the fact that a man's daughters (actual or tribal) would belong to a class different from that of his wife. Two fresh classes may, therefore, have been introduced for the purpose of *expressly* rendering unlawful, in all cases, the marriage between a parent and a child, whether actual or tribal. The real origin, however, of the four class division is probably to be sought in the division of the original marrying group into two grades, a parent and a child grade. If such a division took place, the members of the child grade would have to take class names which, like those of the parent grade, would denote the relationships in which they stood to each other, but differing from those of the parent grade. For instance, if the latter has the names Ipai and Kubi, the child grade would receive the names Kumbu and Muri, which must, like the individuals belonging to them, stand in the same relation to each other as did the original classes. Ipai and Kubi being cousins are intermarrying classes, and such must also be the case with Kumbu and Muri. Moreover, Kumbu and Muri, as Ipai and Kubi, are cousins, because they are respectively the children of a brother and of a sister, and not of two brothers or of two sisters, who, as belonging to the same class, would not be cousins. The following table, framed on the assumption that Ipai-Kumbu represents one of the original intermarrying classes, and Kubi-Muri the other, will show the operation of the laws of marriage and descent.

TABLE A.

PARENT GRADE.

Ego.	Marries.	Children.	Nephew and Niece.	Cousins.
Ipai.	Kubitha.	Muri.	Kumbu.	Kubi.
		Matha.	Butha.	Kubitha.
Kubi.	Ipatha.	Kumbu.	Muri.	Ipai.
		Butha.	Matha.	Ipatha.

CHILD GRADE.

Ego.	Marries.	Children.	Nephew and Niece.	Cousins.
Kumbu.	Matha.	Kubi.	Ipai.	Muri.
		Kubitha.	Ipatha.	Matha.
Muri.	Butha.	Ipai.	Kubi.	Kumbu.
		Ipatha.	Kubitha.	Butha.

With descent in the female line, the result will be the same whether *ego* be male or female. Mr. Fison remarks that "Ipai does not intermarry with Kumbu, nor does Muri intermarry with Kubi; but the Ipai-Kumbu pair intermarries with the Muri-Kubi pair. These pairs represent the original classes." This statement is not quite correct. Ipai would not intermarry with Kumbu, because this is his nephew class; and for the same reason Muri would not intermarry with Kubi. Ipai and Kubi intermarry, however, because they are cousin classes; and so also do Kumbu and Muri, who stand in the same relation to each other. The pairs which represent the original classes are, therefore, Ipai-Kumbu and Kubi-Muri. The difference between this arrangement and that given by Mr. Fison appears to be very slight, but it is nevertheless of great importance, as not only are the classes related to each other in pairs, but each class is specially related to each of the other classes. The correctness

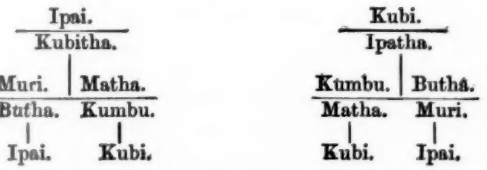
of the arrangement proposed by me is shown by the following table:—

TABLE B.

a	Ipai and Kumbu Kubi and Muri	are Uncle and Nephew classes.
b	Ipai and Muri Kubi and Kumbu	are Parent and Child classes.
c	Ipai and Kubi Kumbu and Muri	are Cousin classes.

If Muri and Kubi were to change places in *a* and *b*, they would have to do the same in *c*, in which case Muri would be the cousin class with Ipai, and Kubi the cousin class with Kumbu. This, however, is contrary to the fact, and, therefore, we must suppose that Kubi-Muri is the true arrangement of these two classes.

As cousins, Ipai and Kubi, and also Kumbu and Muri, are intermarrying classes, and each pair of cousin classes stand to the other in the relation of parent and child. Whether either pair preceded the other is very doubtful, however, as there is nothing to show that either of them specially represents the original and class division. When, therefore, it is said that Ipai-Kubi is the parent grade, and Kumbu-Muri the child grade, the statement must not be taken absolutely. The intermarriage of the Ipai and Kubi classes gives Kumbu and Muri in the next generation; but the intermarriage of Kumbu and Muri gives an analogous result. In fact, the two series of classes alternate from one generation to another, as shown by the following diagram:—



If descent were traced in the male line, the class relationships would be the same as that exhibited in the Table A given above, except that sons and daughters (actual or tribal) would change places with nephews and nieces. With descent in the female line, the latter are treated as more nearly related to a man than his own children. This is not on account of any uncertainty as to paternity, but simply because with descent through females a man's children (actual or tribal) belong to a class allied to that of his wife, while his nephews and nieces are members of a class, allied to that to which he himself belongs. That the question of paternity does not affect the result is evident from the fact

that although, according to the earlier system, "as regards descent, the father is utterly ignored," kinship through him is as fully recognised as though descent were traced in the male line.

Mr. Howitt thinks that indirect evidence of the former existence of the undivided commune among the Australians may be found in the Dieri legend given by Mr. Gason. This legend is related to account for the existence of the *Mŭrdu* custom, which forbids marriage between persons bearing the same family name, and it states that the tribe was divided into branches and distinguished by different names, and the members of each branch forbidden to intermarry, in order to prevent the evil effects which had become manifest through the promiscuous intermarriage between brothers, sisters, and others of the closest kin which had before been customary. It may be observed, as to this legend—assuming it to be *bonâ fide*, and not manufactured by Mr. Gason's native informant—that, as it has not been met with among any other tribe than the Dieri, it may have originated to explain a state of things peculiar to themselves. The Dieri may, owing to peculiar circumstances, have sprung from the union between a brother and sister, such as, according to Hebrew legend, must have been the case with the descendants of Cain or of Seth. But the legend, whether it applies only to the Dieri or to the whole Australian race, proves nothing as to their early social condition. At the utmost it shows only how the ingenious native mind explains the origin of the division of the tribes into branches having different family names—a division which, if it had an immediate relation to the question of marriage, may have been, and probably was, intended to prevent consanguineous marriages, by furnishing an easy test of kinship when the tribe had become so numerous or widespread that kinship could not otherwise be well determined. Mr Fison evidently believes the Dieri legend to be genuine, and he says that "divisions similar to those which it mentions are found throughout the length and breadth of the Australian continent, as well as in many other parts of the world, and that from these divisions, with their inter-sexual arrangements, flows the entire system of kinship called the Turanian by Mr. Morgan." This fact in itself throws doubt on the truth of the legend; seeing that it is very improbable the Dieri tribe, among all the peoples having the Turanian system of kinship, should have alone preserved a remembrance of the cause of the division into classes and gentes. Moreover, according to the hypothesis, that division must have taken place some thousands of years ago, and considering how inconsistent intermarriage between persons regarded as of near kin[1] is with the feelings of the Australians,

[1] The Malagasy allow marriages between brothers' children, and also between the children of a sister and of a brother, on the performance of a prescribed

and all other peoples of a low degree of culture,[1] promiscuity is very unlikely to have been a recognised custom at any time within which the Dieri legend could have originated and been transmitted. For these reasons we shall be justified in supposing the legend to have been of comparatively recent origin, and to have been invented to explain habits which were inconsistent with the ordinary rules of marriage.

Nevertheless, Mr. Fison refers to certain customs which he thinks furnishes strong evidence that communal marriage formerly prevailed among the ancestors of the Kŭrnai. Among other practices, he mentions "expiation for marriage," which, he says, supplies "precisely those conditions which Mr. McLennan justly requires, as necessary to make such evidence of value. The privileged persons should be of the bridegroom's group only, and the cases should be capable of no simpler explanation." Mr. Fison speaks also of "the remarkable significance of the fact recorded by Mr. Howitt, that, when a woman elopes from her husband, she becomes, for the time being, the common property of her pursuers, if they can catch her. By her own act she has severed the tie which, binding her to her husband, guarded her against the old communal right, and forthwith that right asserts itself." Now I would observe, on this latter subject, that the exercise of the so-called communal right is, in reality, part of the punishment of the woman for her elopement. It is referred to by Mr. Howitt as one of the penalties by which a woman's fidelity to her husband is enforced; and Mr. Fison himself, in mentioning a similar practice among the Fijians, speaks of it as a punishment which is inflicted openly in the public square of the town. Probably the idea of a reward to the captors was added, but the predominent idea would have relation to the woman and her offence. Even if we have, in the case mentioned, the assertion of a right, it is not communal, in the strict sense of this term. The men who exercise the right must belong to the husband's group, and therefore they stand in the same social relation to her as her husband himself. Mr. Howitt does not say as much. Indeed, he states that "all the neighbouring men might turn out, and

ceremony supposed to remove any impediment from consanguinity; but marriage between the children of sisters having the same mother is regarded with horror as incest.—"The Great African Island," by the Rev. J. Sibree, jun., p. 248.

[1] Mr. Mann affirms, as to the Andamanese, that "in all the relations of life the question of propinquity is, in their eyes, of paramount importance, and marriage is only permissible between those who are known to be not even distantly connected, except by wedlock, with each other."—("Journ. Anthrop. Inst," vol. xii (1882), p. 126.) "Although great freedom is allowed between the sexes before marriage, it is strictly confined to those not related by blood" (p. 135).

seek for" the eloping woman; but we may judge by analogy that it would be so. When treating of an analogous subject, Mr. Howitt refers to facts which prove that, among the Australians, a "marriage by capture was only permitted when the captor and the captive were of some classes which might legally intermarry." Among one tribe it is said that "the female war captive was at first common to the men present at her capture, and then only became the property of her captor if she were of a class from which he might take a wife." Whether or not the captor, under these circumstances, participated in the common right is not stated; but if so, it would be under the peculiar conditions of the capture, and would be in the nature of a reward, and not of the exercise of a communal right.

The so-called expiation for marriage is a simpler question, for here undoubtedly the men who assert the marital right belong to the husband's family group. Mr. Fison says expressly, "the group of men who can claim expiation for 'special marriage' is no longer the whole tribe, but the group of tribal brothers who have a common right to the group of females to which the woman belongs." The suggestion here made, that the whole tribe could at one time claim expiation, is not supported by evidence; but if the practice of promiscuity, as a propitiatory measure, is sometimes allowed, this fact cannot be taken as evidence of the former existence of the undivided commune. By analogy with the present custom, we must suppose it was only under a special condition of things that the marriage restrictions were suspended, not that they did not exist. We have probably an analogous case in the curious custom which, for a limited period, allows, under certain circumstances, full licence to the exercise of unlawful actions. Thus, formerly, among the Hawaiians, on the death of a chief "the whole neighbourhood," says Ellis, "exhibited a scene of confusion, wickedness, and cruelty, seldom witnessed even in the most barbarous society. The people ran to and fro without their clothes, appearing and acting more like demons than human beings; every vice was practised, and almost every species of crime perpetrated. Houses were burnt, property plundered, even murder sometimes committed, and the gratification of every base and savage feeling sought without restraint."[1] The death of a chief appeared to be regarded as loosening the bonds of society, or rather, as allowing each individual to give full play to his passions. There may be in such conduct something of an expiation or of an offering to the dead, but probably the chief idea in operation was freedom from restraint. Thus, among the Hovas of Madagascar, on the birth of a child in the royal family, complete sexual license was

[1] "Polynesian Researches," 2nd ed., vol. iv, p. 177.

allowed. On one occasion, according to the Rev. Mr. Ellis, "the town, by reason of the scenes which the streets and lanes almost everywhere exhibited, appeared like one vast brothel." Such a period was described by a term which denoted that death could not be then inflicted for any offence.[1] Among the hill tribes of India, similar licentious conduct takes place at religious or funeral festivals, and the same thing would seem to have been usual among some of the ancient Peruvian peoples. The removal of the restraints of authority is thus expressed, in like manner as, during the Areoi festivities of the Tahitians, the restrictions of the Tabu were removed from females;[2] the result, in either case, being no doubt much the same as the licentiousness witnessed among the Australians on the occasions referred to by Mr. Fison.

The absolute promiscuity of the Australians may be explained, therefore, in the same way as the conduct of the Polynesian and other peoples during their religious and other festivals, rather than as a case of expiation. Mr. Fison speaks of "expiation for marriage" as a compounding for the breach of a communal right on the part of the woman, but there does not appear to be any room for such an explanation where there is absolute promiscuity. If for "communal" the word "group" is substituted, we see some force in Mr. Fison's explanation; for it is the group-right which is interfered with, and which therefore requires expiation. In fact, that writer elsewhere admits that his conclusion as to the nature of the Australian system of marriage and relationship does not go beyond the statement that it is "based upon communal marriage between permitted groups." The communism is not general, but is restricted to certain groups, the members of each of which *have the right* to form sexual relations with the members of another group, but not among themselves.

[1] Ellis, "History of Madagascar," vol. i, p. 120.
[2] Ellis, "Polynesian Researches," vol. i, p. 247.

MAY 22ND, 1883.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From the AUTHOR.—Der Schädel Raphaels. By Dr. Schaaffhausen.
From the ROYAL DANISH ACADEMY OF SCIENCES.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1882, 3; 1883, 1.
From the SOCIETY.—Proceedings of the Society of Antiquaries. Vol. IX, No. 1.
—— Journal of the Royal Asiatic Society. Vol. XV, Part 2, April, 1883.
—— Bulletin de la Société d'Anthropologie de Lyon. Tom. I, No. 2.
—— Journal of the Society of Arts. Nos. 1590, 1591.
From the EDITOR.—"Nature." 706, 707.
—— Revue Scientifique. Tom. XXXI, Nos. 19, 20.
—— Revue Politique et Littéraire. Tom. XXXI, Nos. 19, 20.

Mr. E. P. RATHBONE, F.G.S., exhibited and described at some length a collection of ethnological objects which he had recently brought from Bolivia, upon which the Chairman also made a few remarks.

The following paper was read by the author :—

NOTES *on* STONE IMPLEMENTS *from* SOUTH AFRICA.

By Major H. W. FEILDEN, F.G.S.

A COLLECTION of stone implements, part of which I have the honour of laying before the meeting this evening, was made by me in the colony of Natal during the years 1881 and 1882; some of the specimens, however, are from the Transvaal and Zululand.

Of late years some attention has been given to the stone

age of South Africa, and Mr. Sanderson[1] and Mr. Gooch[2] have published papers in the "Journal of the Anthropological Institute" on the subject, whilst Mr. A. F. Griffith has communicated two papers to the Cambridge Antiquarian Society, the results of the notes and collections of Mr. J. C. Rickard[3] in South Africa. In the earlier volumes of the "Journal of the Anthropological Institute," are several references to, and descriptions of, stone implements from the same country.

My original intention was to have selected types from my collection, and submitted them in series; but as this method has already been adopted by the authors of the previous papers on South African stone implements, I have deemed that it may be serving as useful a purpose to group the implements from the different stations from whence they were derived, with a description of the formation or position in which they were found, leaving it to others better qualified than myself to decide whether they are palæothic or neolithic types.

Many of my specimens were gathered somewhat hastily along our lines of march; but as a rule I marked the objects with the date of find, and a reference to my journal gives the information in regard to locality. This plan of inking the date on the implements I have found very useful, and would recommend it to future collectors in South Africa, as specimens are very apt to get mixed up and confused whilst travelling in that country.

Transvaal.—Five specimens of implements found near Rustenburg, in the Transvaal, by Mr. Thomas Ayres, of Potchefstroom. Mr. Ayres kindly sent me these specimens, but without any further information than the neighbourhood from whence they were derived. These specimens are of interest because they have been brought from a station more to the interior of South Africa than any other with which I am acquainted: it is a further proof of the probable general distribution of stone implements throughout South Africa. These specimens, being coated with a ferruginous oxide, have a very ancient appearance; but from other localities I have taken out implements lying on the iron band quite chocolate-coloured, whilst implements in the same bed, lying only a few inches above them, retained all the original lustre of the fresh-fractured stone.

Newcastle District, Natal.—The greater part of my collections

[1] "Stone Implements from Natal." John Sanderson ("Journ. Anthrop. Inst.," vol. viii, 1879, pp. 15–21).

[2] "The Stone Age of South Africa." W. D. Gooch ("Journ. Anthrop. Inst.," vol. xi, 1881, pp. 124–183).

[3] Palæoliths from South Africa, collected by J. C. Rickard. (South African Neoliths, by J. C. Rickard, Proc. Camb. Antiquarian Soc.).

was made whilst I was quartered in the neighbourhood of Newcastle. The immediate vicinity of our camps, pitched on the slopes of the Drakensberg Mountains, was comparatively bare of stone implements. As a matter of fact, in the gorges and wooded kloofs of the higher range of the Drakensberg, I did not obtain a single trace of an implement or worked stone, though during my rambles I carefully examined any deposits I met with of gravel or recent soil that happened to be exposed. Either the rocky beds of the mountain torrents have obliterated or ground into gravel the traces of man's handicraft, or more probably these mountain fastnesses did not afford the stone-using peoples the same inducements as the lower levels teeming with animal life.

At this lower level, some 1,200 to 2,000 feet below the summits of the Drakensberg, where our camps were pitched at Bennitt's Drift, rolling country succeeds; this is much cut up by the ramifications of the present drainage system. Superficial deposits are to be found in each hollow and depression, evidently the washing down and denudation added to yearly in the wet season. At various spots where these deposits have been cut through by channels—in African parlance, "dongas"—I have come across implements. I have taken these out from depths of 20 feet and more below the present surface; but I do not claim as necessary any great lapse of time for the formation of such deposits. The difference between the rates of denudation in a climate like that of Great Britain, in a land covered more or less with perennial verdure, and that of South Africa, is immense. By the time the rainy season commences, the sun and fires have obliterated every blade of grass, the Veldt is parched and arid. Suddenly the thunder-clouds collect on the Berg, and down pours the rain—not in heavy showers, but in sheets of water; each gutter and donga fills with a turbid flood, every hill-side and slope is pouring with water, and hurrying to a lower level its loosened surface soil.

I have a group here of five specimens, taken by myself from below 20 feet of deposit; it consists of two spear-heads, two arrow-heads, and a stone with an artificial hole bored through the centre of it; this last is of such soft material, and so friable, that it does not seem probable that it could have been carried far in a torrent course, before its final deposition. The accumulation of 20 feet of soil and stones might be of comparatively recent formation, if we suppose the "donga" to have altered its course, as they frequently do; it would not take many years for the bed of the old channel to fill up with detritus.

The next groups of implements to which I beg to draw the attention of the meeting were collected from over an extended

tract of country, namely, along a route following the courses of the Ingogane and Buffalo rivers from the neighbourhood of the town of Newcastle, Natal, to Rorke's Drift, on the borders of Zululand, a distance of perhaps eighty miles. I took advantage of every opportunity that arose for leaving the line of march, and examining the "dongas" and denuded surfaces that lay contiguous to this route. As, however, I came to the conclusion that the implement-bearing beds of this district are very much, if not altogether, of the same date, and very recent, geologically speaking, it may perhaps be as well for me to briefly give my reasons for arriving at those conclusions.

Where the northern tributaries of the Tugela, the largest river of Natal, emerge from the Drakensberg ranges of the Newcastle district, they lose, to a considerable extent, their character of mountain streams. These tributaries, the Ingogane, Incandu, and Buffalo rivers, with their minor affluents, pass from the mountains into flat, broad valleys, over which have been laid deep and extensive deposits of sands and clays, singularly free from gravel or rolled-stones. The present rivers have cut their channels for miles through these deposits down to the hard rock, generally the sandstones and shales of the Newcastle coal bearing series, leaving banks of sand from 20 to 40 feet above the dry season level of their waters. I carefully searched many of these exposures of sandbanks along the borders of the main streams for miles, but did not succeed in obtaining from them any trace of implements. This perhaps is owing to the necessarily superficial examination on my part of such large areas, or to the great attrition which these sands have undergone, but I record my experiences for the corroboration or correction of future observers.

These same great alluvial deposits often stretch across the valleys, and very favourable opportunities are given of examining their extent, on account of the dongas, or torrent courses, which bring down the local side-drainage of the valleys, and cut up the more level expanse of bottom-lands into a network of gullies at right angles to the main streams.

Standing on the slopes of the Drakensberg, and looking down on these valleys, the impression left on my mind was that at one time these valleys must either have been lakes or areas covered by water, and now drained by their outlets, the present river system having cut down to a deeper channel and consequently drained them. I cannot account for some of these alluvial deposits, spread over large areas, and composed of fine material with hardly any gravel, without some such solution.

Not only along the borders of the main stream, but in the gullies made by the side-drainage, I failed in obtaining traces of

man's handiwork from these older alluviums. I do not wish to be understood that such remains are not there, only that I did not succeed in discovering any; we may therefore confidently assert that such remains must be scarce. Where these valley-alluviums impinge on the slopes of the hills that form the watershed of the valley of the Buffalo, and overlaying them where side-torrents debouch to join the main stream, alluvium with some very general characteristics are found. These superficial deposits show bedding parallel to the existing slopes and valleys in which they are deposited, and are evidently the results of the denudation now in progress. They consist generally of marls of slaty grey colour, sometimes darkening into blue, sometimes yellowish grey, resting on denuded rock-surfaces, and generally, if not always, containing concretionary limestone nodules varying in size from that of a pea to a man's hand, and reminding one greatly of the *kunkur* of India. These beds very often have a ferruginous compact base. This ferruginous concrete is well described in Mr. Gooch's paper;[1] it is certainly a very remarkable geological feature, and I have observed it in localities on steep slopes where it would apparently have been impossible for marsh iron, with which Mr. Gooch is inclined to ally it, to have formed. Dr. Peter Sutherland, the Surveyor-General of Natal, informed me that in his opinion it was a marsh iron; but it seems to me in many respects analogous to the iron band which we find in the Bagshot sands, locally called "Pan," and which is, I believe, credited to the infiltration of rainwater carrying down the particles of iron. I must here add, my experience accords with Mr. Gooch, that "I have never found any worked stone ascribable to man below this iron bed," in any alluvium that I have examined.

These marl deposits with concretionary nodules, of the Buffalo valley, when cut up and worn away by sub-aerial denudation, are, in certain places, rich in stone implements and fragments of pottery, which, though often to be extracted *in situ*, are more generally left exposed on the denuded surfaces. This is only natural; for as the rains dissolve the sides of the dongas, and carry away the finer material, the heavier objects are left behind, and as the hill-slopes and small valleys are in many places eaten up by a network of feeders to the main stream, immense areas are disintegrated, and the implements are sifted out in readiness for transfer to the pockets of the collector.

To one point in connection with the implements derived from these concretionary limestone marls I venture to draw attention, and that is, out of the large number of worked stones and implements which have passed through my hands, hardly any have I seen with water-worn edges, and those that have I could gene-

[1] Vol. xi, p. 170.

rally account for, by having gathered them out of the channel where they had been washed down during the rains, and abraded subsequently to their exhumation from the marl. It would appear, therefore, that these implements, chiefly made of comparatively soft material, must have been used and lost in the immediate vicinity of where they are now found, and the large numbers that I have found in certain spots seem to indicate settlements or stations at such points. And the circumstance connected with the distribution of these stone implements is that the most prolific spots are generally just those which would have offered a vicinity of exceptional advantages for procuring game in accordance with the present topography. On the summit-range of the Drakensberg, and in its rocky kloofs, where game must always have been scarce, stone implements are scarce, if not altogether absent; whilst on the lower levels of the Newcastle district, which even in the memory of middle-aged colonists swarmed with countless herds of antelope, we find abundant traces of the stone period. The conclusion which I have arrived at is that the users of the stone implements found in the more recent of the superficial alluviums were not separated from the present day by any great lapse of time.

I have divided the specimens from the Buffalo river valley, which I have brought here this evening, into several series—quite an arbitrary arrangement, and without the slightest intention of any system of classification, but merely as an illustration of the prevailing types.

The rude flakes and worked stones in these deposits greatly exceed in number the more finished implements. I have picked up hundreds of such objects without finding a fairly-worked implement. The series now exhibited gives a fair representation of the ruder class. In the Royal Artillery Museum, in the Rotunda at Woolwich, there is a series of implements, forty-one in number, collected from a kitchen-midden near the mouth of the Great Fish river, South Africa, by Colonel H. Bowker, and presented by him in 1866; I have compared a series of these ruder stone implements from the Buffalo river-valley alluviums with those from the Fish river kitchen-middens, and it would, I think, be impossible to separate the two series if mixed together.

The second series of objects from the Buffalo valley alluviums is a selection of the most highly-finished implements that I obtained; they are all very much of the same type—flake-formed spear-heads, with secondary chipping, very often rounded off at the base.

Third, a series of implements of flattish round form, and with secondary flakings—a very common type.

Fourthly, an assemblage of implements of which I did not obtain a series, or, in other words, less common types. I might have brought a very much larger collection for exhibition this evening, but this is a fair representation of the stone implements of the Buffalo valley between Newcastle and Rorke's Drift. It is observable that the majority of the implements are encrusted with the lime deposit which is so persistent a feature in these alluviums.

Zululand.—The four ferruginous-stained implements, which are exactly like those obtained from Rustenberg in the Transvaal, were found by me, on a small abraded patch of a few square yards at the base of the hill of Isandulana. The exact spot was about the centre of where our camp stood on the fatal day in January, 1879, when our troops were overwhelmed by the army of Cetewayo.

These objects were resting on a ferruginous base so common in South Africa, the superincumbent alluvium having been removed by sub-aerial degradation. The other twelve specimens, marked as from Zululand, were collected and given to me by Colonel Curtis and Captain Pennefather, of the Inniskilling Dragoons, who gathered them along a line of march from near Utrecht to the Inlazatche Mountain; it would be difficult to separate these specimens from a similar number picked up at haphazard from the alluvium of the Buffalo valley in Natal.

Estcourt, Natal.—The group of implements here exhibited, and derived from the valley of the Bushman river, close to the town of Estcourt, was collected by me in February, 1881. The exact spot is on the right hand of the Bushman river, about 200 yards below the bridge. The river there runs over a rocky channel, but has cut its course through beds of higher-level alluviums, which may be seen resting on the rocky banks. At the place where I made this collection of implements the river, when in flood—which was the case when I was there—rose just to the level of the alluvial deposit; evidently at times still higher floods invade these beds, for a portion of the bed, at the point I visited, had been undermined for some distance, and from the *débris* I collected in the space of an hour the group of implements now exhibited. From the position of the bed from which these implements were derived—very little, if at all, above that of present highest flood—it may, I think, be inferred that the formation is a recent one. That the implements themselves should show so little sign of abrasion is remarkable, for the major portion of them are formed of comparatively soft materials. Two of the weapons are worked on both sides, and are comparatively highly finished; but the collection, taken as a whole, shows a general *facies* with that from the Buffalo river valley.

Pietermaritzburg, Natal.—I failed to find stone implements in the more ancient and deep alluviums, which are worked for brick-making in the vicinity of the capital of Natal. Such deposits occupy a considerable extent in the vicinity of the city lying between it and the range known as the Town Hill, and forming a considerable part of the low-lying area of the city. On the other hand, as elsewhere in Natal, the superficial deposit now lying in the hollows and depressions of the district, south, east, and west of Pietermaritzburg, yielded implements; but the calcareous marl with nodules is the usual matrix, and the ironstone band is the limit, beneath which it is hopeless, as far as my experience goes, to look for stone implements. I have likewise found a few implements in very recent gravels of the Umsindusi rivers, near Pietermaritzburg, which are now liable to submersion in periods of excessive floods.

Several of the specimens from the neighbourhood of Pietermaritzburg, which are on the table this evening, would be called palæolithic types by some of the gentlemen who have written on the South African stone period; but I took them out of deposits which likewise contain what would be classed as neolithic types by Messrs. Gooch and Griffith.

On several occasions I have found crystals of quartz in company with stone implements in alluviums, and I have here one as an example; but their significance for some time did not strike me. When I reflected, however, that they all showed traces of wear, and are as much erratics in the alluvial deposits as the stone implements themselves, I came to the conclusion that the stone-age people had carried these crystals either as charms or ornaments. Shortly before leaving South Africa I met with a method of securing crystals amongst the Kaffirs, which doubtless throws light on the dispersal of similar objects in the stone implement-bearing alluviums.

The case in point was in a necklace of charms from the Zulu country; it contained an assemblage of objects such as crocodile and leopard teeth, pieces of roots, feathers, &c., but depending from the centre of the string necklace was a crystal of quartz over 2 inches in length, ingeniously mounted in the skin of a lizard's legs; the tough skin of the reptile's leg had evidently been drawn when fresh over the crystal, and by contraction in drying had formed a strong and effective mounting.

Its owner placed such a high value on this string of charms that I was obliged to forego the possession of it.

In connection with this wearing of crystals by the stone-age people, I have a suggestion to make which perhaps may some day bear fruit. As these stone-using tribes of hunters appear to have been interested in rock-crystals as objects of adornments,

or as charms, it is probable that the more beautiful and striking crystallisation of the diamond would attract their attention; consequently I should not be surprised to hear that searchers for stone implements among the alluviums of the diamond-producing districts of South Africa were rewarded by finding diamonds that had been used as ornaments by the stone-age people.

Bushman Rock-Shelters.—Though I have visited several such shelters in the Drakensberg, which from the numerous paintings on the roofs and walls must have been occupied by these people, I never discovered in them any stone implement, or any article of man's manufacture which might not be attributed to the Kaffirs now residing in the neighbourhood. I believe this is owing to the natural disintegration and crumbling of the rock through weathering, the drifting in of leaves and wood, the presence of goats who have sought shelter therein, the scratching of rock rabits and other animals, all of which have combined in depositing a layer of soil over the floor occupied by its Bushman inhabitants. No doubt these rock-shelters, when properly examined by competent persons, will afford most interesting results, and—I hazard the opinion—will show a close connection between the users of the prehistoric stone implements and the Bushman.

The fidelity to nature of the Bushman artists is very striking; there is no difficulty in recognising the species of animals represented, and in some instances I have seen charging animals, surrounded by the hunters, foreshortened with true artistic skill. These drawings are abundant in some rock-shelters on the side of Majuba Mountain, Natal, not far from O'Neil's farm, and are peculiarly interesting, because there the Bushman artist has given us in his paintings a clue to the date when they were executed.

In several instances we see animals, such as buffalo and leopard, attacked by hunters, and so accurate has the artist been in his detail that we can unhesitatingly declare to what race these hunters belonged. Undoubtedly they are meant for Kaffirs —tall, lithesome, black men, carrying their long oval cowhide shields, a bundle of throwing assegais, and casting their weapons into the animals; but to make assurance doubly sure we find, in the top corner of the representation, little black objects, with bows and arrows held athwart their bodies, and looking down upon the hunters. The artist has undoubtedly depicted his race, when driven from the low-lying lands swarming with game, to the fastnesses of the Drakensberg, and the little Bushman holding the bow and arrow is watching from the mountain the deeds of his implacable foe, the iron-using Kaffir.

Mr. John Sanderson, in the paper I have already quoted, gives his reasons for supposing that the intrusion of the great Kaffir

family into the countries from Delagoa Bay, to the present limits within the Cape Colony, may approximately be said to have taken place in the sixteenth and seventeenth centuries. So that, though the paintings in the rock-shelters of Majuba Mountain may be of a far more modern date, they cannot, owing to the introduction of Kaffir portraits, be over three hundred years old.

Mr. Rickard[1] classes the various subdivisions of the South African neolithic period as—

Early Kitchen-midden period;
Cape Flat period;
Late Kitchen-midden period;
Bushman period;

but in commenting on Bushman caves and rock-shelters, he anticipates that it may eventually be necessary to associate Bushman relics with one or more of the other groups, and he further on expresses his surprise that the kitchen-midden periods have not yet supplied us with any of those drawings, for which the Bushman is celebrated, and that no objects have been found in them which could fairly be described as corresponding to the well-formed arrow-heads of Europe, and adduces from this the supposition that the bow is a comparatively recent acquisition of the Bushman.

The non-discovery of Bushman paintings in kitchen-midden deposits may be easily explained from the very remote probability of such designs ever having been included in such formations, and even if they had the pigments with which these paintings have been executed would soon disappear from off a stone buried in a midden, subjected to damp and rain; whilst further, there is no evidence to show that the Bushman exercised his painting capacity elsewhere then on the walls and roofs of his rock-shelter.

The "well-formed arrow-head of Europe" (I presume Mr. Rickard means by that the tanged neolithic implement) may be absent from South Africa, yet arrow-heads are to be found in abundance, though often, from their extreme rudeness, they are liable to be overlooked. I have brought here two series of arrow-heads, gathered by me from various localities in Natal, but all of them from the calcareous marl deposits; I have also brought drawings of iron-tipped arrows and weapons used by the modern Bushman, and one glass arrow-tip flaked by the Bushman of Basutoland, from the base of a glass bottle. Colonel Bowker informed me that, on revisiting spots where he and his escort had encamped in Basutoland, he found evidence

[1] *Loc. cit.*, p. 27.

of the Bushman having been employed in fashioning arrow-heads from discarded soda-water bottles.

A comparison between the arrow-heads used by the modern Bushman and the prehistoric stone arrow-heads leaves little doubt of the close relationship between the older and more modern forms. I cannot, therefore, agree with Mr. Rickard's suggestion that the bow may be a comparatively recent acquisition by that people.

In bringing my remarks to a conclusion, it may be as well to remind the meeting how few observers—perhaps not more than a dozen in all—have paid attention to the distribution of stone implements in South Africa, and that their researches have been rewarded by the discovery of such remains from localities widely apart, and dotted over the continent of South Africa, south of the twenty-fifth parallel. We may therefore conclude that stone implements are of general distribution over this great area, and that the stone-using peoples must have occupied the country for a long period, or else have been very numerous. Possibly the stone age existed for a lengthened term in South Africa, and may resolve itself into palæolithic and neolithic periods; but at present we have hardly sufficient data at command to enable us to arrive at definite conclusions, and until observations have been greatly extended, and collections from many different localities, and deposits of various ages, have been brought together, we should be cautious in accepting sweeping generalisations.

Mr. Gooch, in the maps published along with his interesting and valuable paper in the "Journal of the Anthropological Institute," has not hesitated, even with our scanty knowledge, to illustrate the range of stone-age periods, geographically and definitely, on the map of South Africa, and he has also had the hardihood to account for the finding of more highly-finished stone implements in the neighbourhood of Capetown, by an "ingraft" of "neolithic" skill from without. In my opinion, we are very far from being in a position to draw such conclusions. We at present know very little about the stone periods of South Africa; but this much I feel sure of, that researches in South Africa will be attended with most interesting results, and in all probability a scientific examination of the rock-shelters of the Bushman will show that the stone age of that people inosculates with that of the prehistoric races whose weapons are before us this evening.

Discussion.

Mrs. Carey-Hobson verified Major Feilden's remark as to the greater number of arrow-heads and other stone implements being

found on the large plains that had formerly been the hunting grounds of the aborigines. She remarked that she had herself found upon one of these plains, forty-five miles south of Graaff Reinet, what seemed to have been a small factory of arrow-heads; numbers of broken and spoilt flakes lay strewed about, and near them a piece of dark basaltic rock, from which they had evidently been chipped, and which must have been brought from the mountain-range thirty or forty miles distant, the rocks of the district probably not being deemed of sufficient hardness; whilst spear and arrow-heads, mullers, and the digging-stick-heads are still turned up by the plough on the lands of the farmers in the Karoo.

Miss A. W. Buckland said she looked with especial interest upon the specimens of stone implements from the Transvaal—that being an almost unexplored region, although evidently containing many traces of vanished races, among which might be noticed the remains of ancient mining works near Lydenburg, in the vicinity of which, she had been informed, were also to be found graves of a peculiar form, certainly not of Kaffir origin; and in view of the extended mining operations about to be undertaken in that part of the country, she ventured to suggest the advisability of making one of the mining engineers a corresponding member of the Anthropological Institute, in order that any remains of antiquity found might be properly examined and described.

Mr. A. L. Lewis understood the object of the author was chiefly to protest against the division of the African implements into periods, especially such as the palæolithic and neolithic of Europe, and he was much disposed to agree with him. The great gap alleged to exist between the two periods in Europe would probably be filled up in course of time, and though the majority of the works of each period could readily be distinguished, there were specimens concerning which, if found away from their proper surroundings, no one could say which period they belonged to. If this were the case in Europe there seemed to be no reason whatever to import the possibly artificial distinction between palæolithic and neolithic into Africa, where the geological conditions were so very different. The specimens exhibited by Major Feilden, though resembling sometimes palæolithic and sometimes neolithic types, were, as he stated, found under similar circumstances; and though one was said to have been found under 20 feet of alluvial soil, there seemed every probability that that deposit was comparatively recent, the action of water being much greater there than here. Mr. Lewis then commented on the details of some of the specimens exhibited, and compared them with some from his own collection.

Mr. W. G. Smith remarked that, judging from the stones themselves, apart from the circumstances of their finding (which, as regarded the palæolithic types, the author was unfortunately unable to give), there appeared to be two very distinct series of implements upon the table—one neolithic, in several instances showing remarkably neat and skilful secondary chipping. All the neolithic forms, he said, could readily be matched with European examples.

With regard to the palæolithic types, he thought there were several reasons for looking upon them as antiquities of palæolithic age. In the first place the form was exact, and he could produce duplicates of all, both from Europe and India. It was well known that neolithic examples sometimes approached palæolithic forms, but experienced archæologists would seldom mistake one for the other, as there was a different general *facies* in the two, but difficult to express in words. Again, the implements, he understood, were made of a sort of indurated slate, and if so, they had changed colour, since they were made exactly like the Madras implements, which were commonly made of a deep grey quartzite, but when now found were red from contact with the laterite. A third reason for their probably palæolithic age was their abraded and worn condition; in one example the amount of abrasion was great, and agreed with many European and Indian examples; this abrasion indicated that they had probably been moved for a considerable distance with other stones by water.

Mr. HYDE CLARKE said the paper of the gallant officer was not only of interest as a direct contribution to the knowledge of the stone age in South Africa, but also from the remarkable circumstances under which that information was obtained—on the march, in the battlefield, and through the perils and vicissitudes of war. When they observed how narrow was the zeal for anthropology shown at home, it was an encouragement to witness the devotion to science of their military friends. It was of value to know that the military museums were enriched with specimens of anthropology. With regard to the buildings and workings at the gold mines, without denying the possibility of their being Portuguese, he would hesitate to make such a positive assignment in the absence of adequate investigation. The stones were not, to his knowledge, of Portuguese character. As to the mine-workings, he would observe that in Portugal, in the Iberian Peninsula, there were ancient workings, from which the Portuguese had learned, not only of the Roman epoch, but still more ancient than the Romans—of the prehistoric gold-workers. If the workings were Portuguese, he would suggest that the tombstones mentioned by one of the speakers might be of miners brought by the Portuguese from their Indian settlements.

The Rev. C. T. PRICE read the following paper on behalf of the author, who was on the eve of sailing for Madagascar:—

NOTES *on* RELICS *of the* SIGN *and* GESTURE LANGUAGE *among the* MALAGASY. By the Rev. JAMES SIBREE.

DURING the last few years considerable attention has been paid by European and American scientists to the sign and gesture language of mankind, and information on the subject will be found

in the works of Siccard, Krause, Scott, Burton, Long, Lubbock, and Tylor. Systematic attempts are also now being made by the officials of the Bureau of Ethnology of the Smithsonian Institution at Washington to gain information from all parts of the world on this branch of ethnological inquiry. As far as is yet known this very primitive form of communication between men appears to have been most fully developed among the North American Indian tribes; at any rate they have retained it up to the present day in a more complete state than is now found in other countries, so that long and complicated narratives, with very minute detail, can be imparted with perfect accuracy. All nations, however, even the most cultivated, and those among whom oral speech has been most perfected, have retained vestiges of this primitive habit of mankind, and in forced and impassioned address, gesture, as we all know, is unconsciously used to add to the effect of articulate language. The "action, action, action," of Demosthenes is the resort of all speakers when wrought up to an unusual pitch of excitement; but among many tribes of the human family it is not merely the accessory of speech, but, in certain conditions, constitutes speech itself. From what is already known of the habits of many races in this respect, it is certain that relics—more or less full—of the gesture language exist in every nation, and, probably, most completely among the uncivilised peoples of the world.

Colonel Garrick Mallery, United States of America, of the Smithsonian Institution, in several works on this subject, has shown how important a relation gesture language bears to ethnological study, as well as to that of language. It is a significant fact that many of the most widely practised gestures of the American tribes are almost exactly those which are used by deaf mutes, showing that there is a natural fitness in many gestures to convey ideas; and thus, as Colonel Mallery observes, the study of their gesture system may "solve problems in psychologic comparative philology not limited to the single form of speech, but embracing all modes of expressing ideas." It is believed that in ancient times "all the inhabitants of North America practised sign language, but with different degrees of expertness," and that signs, constituting as they do a natural mode of expression, do not readily change in their essentials among widely-separated peoples, and in different ages of the world. The result of the comparison between the sign language of the North American Indians and that of deaf mutes is, that these, together with the gesture system of all peoples, constitute together one language—the gesture speech of mankind—of which each system is a dialect. It will be thus seen that this study is an interesting aid to ethnologic and archæologic re-

search, as revealing a stage of progress once passed through by our ancestors, and in discovering religious, sociologic, and historic ideas presented in signs and gestures—a branch of research which has been applied with great success to the radicals of oral speech.

As Colonel Mallery is very desirous to enlist the co-operation of all observers residing among little-known races, in order to collect facts from a wider basis than has yet been practicable, I have here noticed, very briefly, two or three of the more important results which are served by such studies. And in order to make a commencement of such noting of facts, in reference to signs and gestures among the different Malagasy tribes, as well as to draw attention to the subject,—not by any means as professing to give a full account of what might be collected,—the following particulars may be recorded as relics of the gesture and signs accompanying oral speech among the Hovas of Central Madagascar.[1]

1. One of the native customs which will probably soon strike a foreigner coming into the country is that which is made use of in passing in front of a superior, or, indeed, any one to whom respect is due, or is desired to be paid. This is chiefly, though not exclusively, observed indoors, and consists in the person passing in front of another, who is usually sitting, bending the body low, and, with the right hand extended and nearly touching the ground, generally using at the same time the words *Mbay làlana, Tompoko é* ("Allow me to pass, sir"). These words are also used, with or without the bending of the body, &c., when walking along a public path, aud passing any one sitting at a door, or window, or on the *fijeréna*, or elevated seat above a boundary wall. I have not heard any explanation from a native of the meaning or origin of this particular gesture; possibly it may be now lost. But the Hovas look with scorn upon those who neglect such acts of politeness, saying of them, contemptuously, "He passes on like an ox, and does not say, 'Let me pass.'"

2. Another expressive gesture among the Hova Malagasy is that which is used in presenting *hàsina* (the dollar of allegiance), or any other present to the sovereign, or to the representative of royalty. At the close of the speech of formal complimentary phrases, the speaker stretches out both outspread hands, with the palms outward, and, bending downward and forward, raises his hands towards the great person addressed until they are

[1] As this short paper is written in England, without any opportunity of consulting native Malagasy, it is necessarily much less full than it might probably be made had there been a possibility of making inquiries among the people.

about level with his head. This appears a very natural and significant gesture when making an offering.

3. A sign of still more profound respect than is shown in the foregoing gestures is preserved in the phrase for abject submission still in common use, viz., *milèla-pàladìa.* The literal meaning of this is to "lick the sole" (of the foot). Among the Hovas this is now only a phrase, but up to a comparatively recent period the act it described was one in common use as a token of respect from slaves to masters, wives to husbands, and from inferiors generally to superiors. Robert Drury, who lived as a slave in the south-western part of Madagascar from 1702 to 1717, describes himself as frequently performing this act of homage, and seeing it constantly rendered by others. Scriptural parallels (*cf.* Isa. xlix, 23; lx, 14; Luke vii, 38) will occur to all readers of the Bible, as well as the homage paid by Roman Catholics to the Pope by kissing (not his toe, as commonly said, but) the cross on his slipper.

4. There are several Malagasy customs connected with royalty which are significant outward acts, although, perhaps, not strictly to be reckoned as portions of the gesture language. Among these are the shaving of the head by the whole population at the death of the sovereign; the wearing at royal funerals of the *làmba,* or outer loose robe, below the armpits instead of over the shoulders, so as to leave the upper part of the body uncovered; and the turning out of the way and baring the head when any royal property is carried along. The bent of mind among the Malagasy leads them to use symbolic *acts,*[1] as well as to the profuse employment of figure and metaphor and parable in their public speeches and more formal addresses.

5. One can hardly be long in Madagascar without observing that the people use a different motion of the hand in beckoning another to come near than we employ in similar cases. They do this by stretching out the hand with the palm *downwards,* moving the fingers toward them, instead of turning the palm *upwards,* as we should do.

6. Again, in pointing out the position of anything near to them, the Hova will not usually trouble himself to do so with the hand, as we usually do, but motions towards it with the *mouth,* stretching out the head, and protruding—in an ugly enough fashion certainly—the lower lip in the required direction.

7. Another point to be here noted is the act which takes the place which *kissing* occupies among Western peoples. The kiss seems almost unknown among the Malagasy, except as introduced by Arabs and Europeans, and its place is taken by nose-

[1] See "Great African Island," pp. 332–334.

rubbing, or rather of nose-*pressing*, a custom, as is well known, widely used by uncivilised peoples, and apparently a relic of a very primitive habit of recognising another person by scent or smell. The native word for this is *manòroka*, a verb derived probably from the root *òrana*, nose (Javanese, *irong;* Celebes, *urong*), the terminals *na* and *ka* being often interchangeable. The shaking of hands is not a native custom, but is being largely adopted where foreign influence prevails.

8. In a recently published journal of a missionary tour along the east coast of Madagascar, Mr. G. A. Shaw says: "Only a short time since, in a village in the south, pressure from the Hova being brought to bear on some Bétsimisàraka to send their children to a school which was in the same village, the women went about with their hands clasped on their heads (a Bétsimisàraka sign of grief), bewailing the loss of their children." In their ignorance of the milder Hova rule of recent times, they supposed that school training was only a preliminary to government service, as in the time of the first Radàma (1810–1828).

9. A piece of gesture language seems to be preserved in the Malagasy word for "blessing," or "benediction," which is *tsòdràno*, literally, "blowing water." This act appears now to be almost, if not quite, obsolete among the Hova; but the word still commonly employed doubtless preserves the remembrance of an act formerly used by them in pronouncing a blessing. Some light seems to be thrown upon this custom by a very similar one described by the Rev. Dr. Turner, for more than forty-two years a missionary in the Samoan Islands, in his "Nineteen Years in Polynesia" (Snow, London, 1861, p. 224). In case of disease attacking a Samoan, the high priest of the village sometimes told the sick man's friends "to assemble the family, 'confess and throw out.' In this ceremony, each member of the family confessed his crimes, and any judgments which, in anger, he had invoked on the family, or on the particular member of it then ill; and, as a proof that he revoked all such imprecations, he took a little water in his mouth and spurted it out towards the person who was sick. The custom is still kept up by many."

POSTSCRIPT.

Since writing the foregoing it has occurred to me to send a copy to several Madagascar missionaries now in England on furlough, and ask them for any suggestions and further particulars. All have responded very kindly to my request, and to my friends the Revs. J. Peill, C. T. Price, and J. A. Houlder, and Mr. J. C. Thorne, I am much indebted for the following

additional facts connected with sign and gesture language amongst the Malagasy, which I had not remembered when writing the first part of this paper.

In the ordinary salutation of the Hova, *Manào akòry hianào?* ("How dost thou do?") the head is usually thrown up instead of bending it down. In expressing astonishment, usually with the word *Odré!* ("Dear me!" or "Oh dear!") the fist is frequently held to the mouth. As Mr. Thorne remarks, the meaning of this gesture must have been originally to conceal a laugh, as it is also used when something funny has been said. In challenging, or expressing defiance, the *làmba*, or flowing outer garment, is waved about in the air. Although hardly gestures, strictly so called, there are sounds used by the Hova on certain occasions which are not speech. These are a kind of "click," made by the tongue, and employed to express admiration or approval of public speeches; and a deep humming sound, somewhat like "hoo, hoo," used when the sovereign is passing as a salutation to her. To spread a clean mat on the ground when the stranger enters the house is a usual sign of welcome. (Rev. J. Houlder.)

Mr. Price remarks that among the Bétsiléo, the gesture referred to in paragraph 1 (*ante*) is carefully observed along the roads with the shortened form of address, *Ombày*, or *Ombàko*. It implies respect, and especially *humility*, and is termed *manjòko*. Even in a church superiors expect an inferior or younger person to show this mark of respect when passing. (2) The second gesture noted above is used every Sunday in the Royal Chapel, after the prayer for the Queen, or the playing of the National Anthem; also by the troops in distant parts of the island, who turn towards the capital and thus salute their distant sovereign, when the national air (which is simply our "God save the Queen," by them curiously altered to *Toidikinina!*) is played by the band. It is also used to other persons in giving thanks, as to a senior or superior when any special respect is desired to be shown. (3) With regard to the third (*Miléla-pàladia*), Mr. Price says, "This may not now be literally performed, but that it is still more than a phrase I know from the fact that an old woman once, in begging me very earnestly to grant her some request, said *Miléla-pàladia*, &c., and at the same moment stooped down and stroked my boots with her hand, and very unpleasant it was." Mr. Peill also says of this custom that "it is scarcely true that it is now merely a phrase among the Hova, as I have seen it actually done. Queen's messengers sent out to a certain village were not, as they thought, received with proper respect; they therefore left the village without having delivered the royal message. The chiefs of the village were dreadfully afraid, and followed after the Queen's messengers

with their hair all down (that is, with the numerous small plaits and knots unloosed) over their shoulders, dishevelled, and their *làmbas* down below their shoulders.[1] When they reached the royal messengers they at once fell at the feet of the principal one of them, a judge, and actually kissed or licked his feet, at the same time humbly begging his acceptance of their repentance. He yielded to their request, and returned with them. I have no doubt that while much less frequent than formerly was case, the custom is still occasionally observed."

Mr. Price further remarks: "For what purpose do all the people, sometimes when there is a great *kabàry* (public assembly), and the Queen appears, put down their umbrellas? It has been said that they do so whenever the Queen spits, but whether that is a joke or not I cannot tell. More ridiculous customs are quite credible." "The use of the fingers in 'totting off' a number of heads or points in a discourse of private conversation is very remarkable. They do not merely touch the left-hand fingers on the *side* with the right forefinger, but holding the left hand out palm upwards, they pull up and lay over flat on the open palm the fingers one by one."[2] "In descriptions of persons, things, events, &c., they often take up little bits of stone or stick, or anything that is to hand, and lay them out in order to represent the different people, things, events, ideas, heads, &c., about which they are speaking. Frequently they make the talk much more emphatic by these means." "A loose woman may sometimes be known (*i.e.*, when she is plying her trade) by her going about the streets with her face covered with her *làmba*. I remember one case in which it was made a reproach to a woman that she, a stranger, walked through a certain town to the house at which she was to stay, 'with face covered like a harlot'" (*cf.* Gen. xxxviii, 15). The *làmba* is also used to denote other feelings: "Note the covering of the lower half or more of the face with the *làmba* when a person is sulky or sullen, squatting on the ground in silence. Here they may do this when they are simply lazy and not sulky, but they always do it when they *are* sulky." The covering of the mouth is also indicative of modesty or shame, often further shown by uncovering the feet and lower part of the legs. In giving assurances of loyalty and obedience at a public assembly the speaker often dances, flourishing his spear or sword, and throwing off the *làmba*. "This is intended to express rage at and

[1] These two acts are done not only at the death of a sovereign, but also at those of relatives and friends, and occasionally even the head is shaved. The hair is dishevelled for a long time, and children in the schools, and adults in the congregation, refuse to *sing* at all for a long time after the death of a relative.

[2] Malagasy children very frequently count on their toes, instead of their fingers.

defiance of an imaginary enemy." Mr. Peill adds: "At the end of a period (*i.e.*, of a public speech) they jump clean from the ground, and coming down stamp with both feet together on the ground, in order to emphasize what they are saying." "In walking together, friends do not go arm-in-arm, but hand-in-hand, or the hand of one may be thrown round the other's shoulder or round the waist." "The Bétsiléo in saluting a superior do not make the same gesture as the Hova. They bend forward and make a sort of scrape, at the same time laying hold of the forelock and tugging at it."

Mr. Peill remarks: "In pointing to an object some distance away, I have often noticed that the Malagasy point the finger far higher than Europeans under like circumstances would do. They point in the direction of the thing to which they wish to call attention, of course, but up to the heavens in that direction, not towards the earth." "Another custom illustrating this subject is the *màmpitàha*, one wife imitating another to show that she is equally clever, both with her hands and feet. I have watched young girls engaged in this game with great interest and amusement, and I imagine that apart from the general object of the elder wife showing that she is equally clever with the younger, each gesture conveys some definite idea to the natives, illustrating the things in which the one is supposed to equal or excel the other." "I have seen Malagasy women, on receiving news of the death of a near relative, throw themselves flat on their faces on the ground, and creep towards the bearer of the message, at the same time rolling in the dust, and tearing their hair in their grief."

Mr. Thorne points out that there are many symbolic acts used by the Malagasy, which are somewhat connected with signs and gestures. Among these are the *kiàdy*, or sign of ownership, or possession, or protection. This is, in fact, a mark of *tabu*, or *tapu*, and is usually a tall, upright stick, with a bunch of grass fastened at the top, and stuck into the ground; although how this came to signify possession needs further inquiry. Something similar to this is practised by bearers, who often come before a journey is made and tie a piece of grass round one end of the palanquin pole to signify that they are engaged for it and will claim to carry. A road or path is also *tabu*-ed by putting a stick or sticks across it to signify that those in the rear are to avoid it. Mr. Thorne further remarks: "Symbolic acts must at one time have been much more numerous among the Malagasy than at present. One naturally thinks of the piece of wood sent by Andriamanàlina of Bétsiléo to Andrianòmpòina (King of Imérina), as his *réfy* measure (about 5 feet 8 inches to 6 feet, a measure formed by stretching out

the arms and hands as far as they will reach); and of the large *làmba* on which Andrianimpòina killed the bullock, not one drop of whose blood fell outside it, and of the *làmba* afterwards sent by him with a hole cut out of the middle.[1] Also of Andriamampandry's symbolic teaching of Andriamàsinavàlona. Among symbolic acts still customary I have thought of the following:—Spitting on noticing a bad smell (perhaps rather a sensible sanitary precaution); *Ny mitsòngo dìa* (lit., pinching the sole), symbol of a desire to share in another's good fortune; *Ny midla fàditra*[2] (throwing away some object which has a supposed connection, often merely verbal, with disease or calamity), symbol of a desire to be rid of some calamity; *Ny misòtro vòvoka*[3] (drinking water mixed with dust from a royal tomb); and *Ny mivély ràno* (striking water with a spear, at the time of taking an oath to the sovereign), symbol of allegiance."

Discussion.

Mr. Hyde Clarke said the paper of Mr. Sibree was of the more value to the Institute because gesture language had at various times occupied the attention of its members. Mr. Dunbar Heath had dealt with the question of an epoch when man was speechless, and Professor Graham Bell had given in their rooms an illustration of deaf mute language and Indian sign language, which, unfortunately, did not admit of reproduction in the "Journal." The paper of Mr. Sibree referred rather to gestures used in connection with speech than to independent sign language, but it would be most welcome to that distinguished labourer, Colonel Garrick Mallery, because many of these single gestures gave the clue to survivals. Many of their most valuable contributions came from missionaries, and now that these had been led into the field of anthropological investigation they were able, as in this paper, to bring to bear a large store of illustrative material. Nose salutation was of anthropological importance, because it was a custom widely observed; whether it had any connection with a practice of smelling he should not like to affirm. We know that many gestures, notably among American aborigines, are imitated from totem or other animals, and he believed that this was used by the lion as it certainly is by the cat, but with no function of smelling. In connection with gesture language also, there are associations capable of explaining nose-rubbing as a salutation. As to the general question of sign language, he would observe that all his observations induced him to believe that the invention and diffusion of speech language as a separate institution appeared to be represented by the series of traditions known as the Deluge traditions. Such referred to a new diffusion of men and institutions by strangers who came by water; but the Deluge was to be regarded

[1] Referred to and described, together with other examples, in "The Great African Island," pp. 332–334, as already noted.

[2] *Ibid.*, p. 303. [3] *Ibid.*, p. 284.

as one of those inversions of tradition resulting from afterthought and suggestion of a cause. The relation between sign and speech language appeared to rest, as he had stated, for its origin, on the connection noticed by Mr. Alfred R. Wallace between the employment of a nasal, as in English, for the nose, of a labial for the mouth, and of a dental for the teeth. The associations of the groups of ideas in speech, as developed by himself, were such as had their origin in sign language, and were illustrated by characters probably anterior to speech. Mr. Sibree's communication was the result of the effort of Colonel Mallery to obtain information in every quarter, and he (Mr. Clarke) had just learned that Captain Stab, acting on his invitation, was preparing for the United States department a paper on the mutes of Constantinople. Unfortunately, like himself, Captain Stab, not having been aware of the value of observations of the mutes, had to depend on his memory, but it was to be hoped he would some day prosecute investigations on the spot. In his own conversation with the mutes it had been established by a conventional and tentative process, such as described by Professor Graham Bell as to his conversations with a French deaf mute at Paris. He himself had not conversed in the regular language of the mutes, and only comprehended its nature generally, and by the results. The mutes of the Seraglio had undoubtedly conventional signs among themselves for the cities and provinces of the empire, for foreign countries, and for individuals, and were fond of communicating with each other political intelligence of which they were reputed to be the earliest possessors. They conversed most rapidly, and to all appearance and probability, more rapidly than by speech. There was this singular circumstance, which he had before stated, that lip-reading was an established institution with them, and in this way those who were deaf acquired their information from the minister when they were supposed not to hear. When a mute was not able to make him understand who was the man referred to by a sign, he endeavoured to communicate the name by his lips, as Mahmud, for none of them were able to write. One of them was reputed to have made and lost considerable sums of his savings by speculating in Caïme paper money. He himself adhered to his proposition, that the mutes of Constantinople represented the pantomimes of the classic writers, and that was the reason for his efforts to obtain information, and to induce Colonel Mallery to do so, as there was a possibility of the survival of an ancient sign language, which would throw light on the others. The Romans evidently understood sign language as many of the Turks do, because at the theatre the subject of a play by Plautus or Terence would be recounted in gestures by a pantomime, and it had been proposed to use pantomimes as interpreters among the tribes of unknown tongue in the African wars. He proposed a vote of thanks to Mr. Sibree for his valuable contribution.

JUNE 12TH, 1883.

Professor W. H. FLOWER, LL.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Otrepanovaných lebkách předhistorických nalezených v Čechách. By Dr. J. Kopernicki.
—— Czaszki i Kósci. By Dr. J. Kopernicki.
—— All the Articles of the Darwin Faith. By Rev. F. O. Morris.
—— Notes on Copper Implements from Mexico. By F. W. Putnam.
—— Ueber den Menschlichen Kiefer aus der Schipka-Höhle bei Stramberg in Mähren. By Prof. Dr. H. Schaaffhausen.
From the MINISTER OF INSTRUCTION, GUATEMALA.—Informe que el Jefe de la Seccion de Estadistica.
From the ACADEMY OF SCIENCES, KRACOW.—Lud, Serya XV, Część. 7.
—— Pokuchie. Tom. I.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Correspondenz-Blatt. Mai, 1883.
From the ACADEMY.—Bulletin de l'Académie Imperiale des Sciences de St. Pétersbourg. Tom. XXVIII, No. 3.
—— Atti della R. Accademia dei Lincei. Vol. VII, Fas. 9, 10.
From the INSTITUTION.—Journal of the Royal United Service Institution, No. 19.
From the SOCIETY.—Proceedings of the Royal Geographical Society. June, 1883.
—— Journal of the Society of Arts. Nos. 1592–1594.
—— Journal of the Asiatic Society of Bengal. No. 252, Vol. LII, Part. 1, No. 1.
From the EDITOR.—"Nature." Nos. 708–710.
—— Revue Politique. Tom. XXXI, Nos. 21–23.
—— Revue Scientifique. Tom. XXXI, Nos. 21–23.
—— Science. Vol. I, No. 15.
—— Scientific Roll, No. 11.

The DIRECTOR read a letter from Mr. H. Rivett-Carnac, F.S.A., on some Stone Implements found in the Banda District, North-Western Provinces, India (see last number of the "Journal," p. 117), and General PITT-RIVERS made a few remarks upon the collection of implements which had been sent to the Institute by Mr. Rivett-Carnac, and was exhibited to the meeting.

A paper on "Old Scandinavian Civilisation among the Modern Esquimaux" was read by Dr. E. B. Tylor. This paper, with the discussion thereon, will be printed in a subsequent number of the "Journal."

Dr. E. B. Tylor then read the following paper on behalf of the author:—

On some Australian Beliefs.

By A. W. Howitt, Esq., F.G.S.

In this paper I shall deal with some of the beliefs obtaining in certain tribes which once occupied a large part of South-Eastern Australia, and whose scattered remnants still inhabit the hunting-grounds of their forefathers. My information has been obtained during many conversations with those tribesmen who still remain.

The following are the tribes to which I refer:—the Kurnai, of Gippsland; the Woi-worŭng, who inhabited the country north of the Yarra River; the Wolgal, of the country through which flow the Upper Murray, the Murrumbidgee, and the Tumut Rivers; the Theddora of Omer, and the Mitta-Mitta River; the Ngarego, of the Maneroo Tableland, and the Murring of the coast between Mallagoota Inlet and the Shoalhaven River; to these may be added two tribes which were allied to the Woi-worŭng, and whose men were also, as were those of the latter, called Kūlin. Of these tribes, one lived about the sources of the Wimmera River, and the other on the Avoca River. The latter belonged to the well-known Jajowrong people, and its special tribal name was "Jūpa-galk-wournditch."[1]

I may note here that the words *Kŭrnai*, *Kūlin*, and *Murring* are all synonymous, meaning "men," in distinction to other blackfellows whom the respective Kŭrnai, Kūlin, or Murring designate "wild men," "snakes," "come-by-night," or by other similar terms of contempt or fear. *Woi-worŭng* (*worŭng*, tongue), *Wolgal* (*wol*, no; *gal*, of, or belonging to), and *Ngarego* are the names of languages which are used as tribal designations.

The Wolgal, Ngarego, and coast Murring are, in fact, all "Murring," and thus the word indicates a still larger related group, and this group is again indicated by the community of initiation ceremonies. I have used the word "coast Murring," as merely a convenient term to distinguish these people from the allied mountain Murring (Ngarego).

[1] *Jŭpa-galk*, the so-called native myrtle (*Bursaria spinosa*); *galk* = wood, or tree; *wournditch* = men, or people.

Thus, on reference to a map, it will be seen that the beliefs which I am going to describe cover no small part of the Australian continent.

The Physical Universe.—All the tribes named held the belief that the earth is a flat surface, surmounted by a solid vault—the sky. The Kŭrnai believed that beyond the sky there was a country inhabited by the spirits *Brewin*, *Baukan*, and the *Mrarts* (ghosts). The Woi-worŭng called this trans-celestial land—"*Tharan-gulk-bek*," *i.e.*, the gum-tree country. It was believed by them to have trees, streams, and to be otherwise similar to the earth. They further believed that, somewhere in the mountains in the north-east of Victoria, the vault was propped up by poles, the rotting of which might cause the sky to fall, and the drowning of all people through the bursting of the clouds, which they regarded as reservoirs of water.[1]

The Ngarego and Wolgal believed that beyond the sky (*Kūlŭmbi*), there was another country similar to the earth, with "rivers and trees." Similar beliefs were held by the Wimmera Kūlin and the Jūpagalk.

The human individual during and after life.—The Kŭrnai believe that each human individual has within him a spirit, which they call *Yambo*. This *Yambo*, it was supposed, could, during sleep, leave the body; could confer with other disembodied spirits; could even wend its way to the celestial vault, beyond which lies "ghost-land." Indeed, this belief is still held, perhaps, by all but those who have been educated at the Mission stations. With the Woi-worŭng, this human spirit was called *Mūrŭp*. It was supposed that the *Mūrŭp* could leave the body during sleep, and the exact period of departure was said to be during the "snoring" of the sleeper. It was also believed that the *Mūrŭp* of an individual could be sent from him by magic, as, for instance, when a hunter incautiously went to sleep when out hunting, or at a distance from his camp. The *Mūrŭp* being thus temporarily banished, and the wakening of the victim prevented, his enemy was supposed to abstract his kidney fat, and thereby cause his ultimate death. The belief in the temporary departure of the human spirit during sleep still exists in the last surviving Woi-worŭng, after almost a lifetime of contact with the civilisation of Melbourne. Quite recently "King William" told me that the *Mūrŭp* of his son, who had been taken to

[1] Buckley ("the Wild White Man") says in his "Life and Adventures" (John Morgan, Tasmania, 1882), p. 57: "They have a notion that the world is supported by props which are in the charge of a man who lives at the further end of the earth. They were dreadfully alarmed on one occasion when I was with them by news passed from tribe to tribe that unless they could send him a supply of tomahawks for cutting some more props, and some more ropes to tie them, the earth would go by the run, and all hands would be smothered."

the Melbourne Hospital, where he afterwards died, appeared to his comrade during sleep, and took him "up a rope, and went through a hole in the sky." Then, looking down, said, "Tell my father I will wait for him here till he comes." William is even yet searching in the mountains of the Upper Yarra River for a block of stone covered with gold, which he had seen during sleep. As he put it, "My *Mŭrŭp* has not yet taken me far enough in the ranges—I have been to every place near."

The *Mŭrŭp* of the living was supposed to be able to communicate with other *Mŭrŭps*, either of sleepers or of those who were dead. It could wend its way to the sky, but not beyond it to the "gum-tree country."

I have, when treating elsewhere of the Kŭrnai, given instances of their belief in the reality of dreams. It may be said of the aborigines I am now concerned with, and probably of all others, that their dreams are to them as much realities in one sense, as are the actual events of their waking life. It may be said that in this respect they fail to distinguish between the subjective and objective impressions of the brain, and regard both as real events.

The human spirit became after death what we may call a "ghost." With the Kŭrnai it was a *Mrart;* but I am inclined to think that the *Yambo* was also generally supposed to exist for some little time after death as *Yambo,* and before it became *Mrart;* for I have heard the ghost of the dead spoken of as *Yambo,* or sometimes as *Turdi-Kŭrnai, i.e.,* dead man. With the Ngarego and Wolgal, the dead man's ghost was *Būlabong;* with the coast Murring, *Tūlūgal, i.e.,* "belonging to the dead." Taking the term "ghost" as representing all these words, I may now proceed to note some further beliefs.

I have but little to add to those of the Kŭrnai, as I have described them elsewhere, excepting that the ghosts were believed to live upon plants, and that they could revisit the earth at will, to communicate with the wizards, or on being summoned by them.

The Woi-worŭng believed that the ghost wandered, at least for a time, in the hunting-grounds it had used when embodied, but this must, I think, have been after ascending to the sky. I learn that it was thought that, at the very first of the final separation of the *Mŭrŭp* from the body, it proceeded to the west, and there falling over the edge of the earth, went into the receptacle of the sun—the *Ngamat;* thence ascending in the bright tints of sunset to the sky.[1] I have an account how a celebrated

[1] This, I think, explains why the white man was called "Ngamajet." Buckley says (*loc. cit.*, p. 54) that at the completion of the burial of a man "one word was uttered *Animadiate*, which means, 'He is gone to be made a white man, but not for ever.'" This could scarcely have been the case, one would think, before

wizard pursued the escaping spirit, and returned successful, saying that he had overtaken it just as it was falling over into Ngamal, and that he had seized it by the middle, and brought it back captive under his 'possum rug. Being thus restored to the "still breathing body," the sick man recovered consciousness, and revived.

The ghost was supposed to return at times to the grave and contemplate its mortal remains. William Beiruk, in speaking to me of this, put it in this way: "Sometimes the *Mūrŭp* comes back and looks down into the grave, and it may say—'Hallo, there is my old 'possum rug; there are my old bones.'" The ghost was supposed to kill game with magically deadly spears. It was even believed that where fires were left burning in the bush where hunters had cooked part of their game, the ghosts would come after they had gone and warm themselves, and consume the fragments. Finally, the ghosts were believed to inhabit the "gum-tree country" beyond the sky, or perhaps, to speak more correctly, the country which was the other side of the vault. Such beliefs as these were probably held by the Wimmera Kūlin, for it was supposed by them that a boy who saw his mother's ghost sitting by her grave afterwards became a wizard.

The Ngarego and Wolgal also thought that the ghost for a time haunted the neighbourhood of the grave, and that it could kill game, light fires, and make camps for itself. In the case of the interment, not many years ago, of a man at the Snowy River, the survivors were much alarmed during the night following the burial by what they supposed to be the ghost of the dead man prowling round the camp, and, as one of them said, "coming after his wife."

According to the old men of the Ngarego and Wolgal respectively, the ghost (*Būlabong*) was met on its departure by the Great Spirit *Tharamūlŭn*, who conducted it to its future home beyond the sky.

These beliefs as to the human spirit in and after life I find to be widespread; and they are important in their bearing. The *Yambo*, the *Mūrŭp*, the *Būlabong*, or whatever name we choose to take, clearly represents during life the self-consciousness of the individual. The apparent power of this self-consciousness to desert the body during sleep for a time, leads naturally up to the further belief that death is merely its permanent separation from the body. Moreover, as during dreams the "ghosts" of others who were dead were apparently perceived, the belief is

the white men arrived. Buckley, I suspect, has mixed up the old belief as to the *Ngamat*, and has given the word *Ngamajet*—*i.e.*, one returned from Ngamat—as "Animadiate."

natural that the individual still existed after death, although generally invisible to the living. This was brought out very clearly to me by the argument of one of the Kŭrnai, whom I asked whether he really thought his *Yambo* could "go out" during sleep. He said: "It must be so, for when I sleep I go to distant places; I see distant people; I even see and speak with those that are dead."

Such beliefs as these explain much that would otherwise seem unmeaning or inexplicable in the tribal burial customs. The Kŭrnai, as I have described elsewhere, rolled up the dead tightly, and corded him in a sheet of bark. They carried the corpse for a long period; in other words, the dead member of the group accompanied it in its accustomed wanderings. That the ghost of the deceased was supposed to accompany and watch over its living relatives is evident from the custom of carrying the "dead hand."[1] Not only was it invoked in times of danger from mortal foes, but also, as I have lately traced out, at times when calamities seemed to threaten the tribe. I learn that when the *aurora australis* was seen, all the Kŭrnai in the camp swung the "dead hand" towards the alarming portent, shouting such words as these: "Send it away! send it away! do not let it burn us up!"[2]

It seems to have been universal with all the tribes I am concerned with that the dead man was dressed in his full corroboree costume when buried, or when rolled up for transport.

The Woi-worŭng buried their dead in circular pits. The corpse, with its hands crossed, was corded tightly so that the knees were drawn up towards the head, and the body was usually laid on its side as if in sleep. With the dead was buried his personal property and his stone tomahawk, but, at least in the section of the Woi-worŭng to which William Beiruk belonged, no weapons, "lest the dead man might hurt some one." But in one instance of a noted hunter, his throwing-stick (*mŭrri-wŭn*) was stuck in the grave by his right side, "so that he might have it handy." The grave was then filled in with wood, stones, and earth.

A different practice seems to have obtained among the Kūlin of the Wimmera. In this tribe the dead man was left lying in his hut for two or three days before his relatives tied him up tight; they bewailed him for about a week in all. He was then put either in a hollow tree or on a raised stage, round

[1] See "Kamilaroi and Kŭrnai," p. 244.

[2] It seems to me very suggestive that on this occasion there was a temporary reversion to intersexual communism, *i.e.*, by the exchange of wives. This exchange is connected with a supposed impending supernatural calamity which the deceased "ancestors" were at least able to prevent, and I suspect that they were supposed to have caused it. On this view the temporary reversion to intersexual communism appears like a propitiatory or expiatory ceremony.

which his bereaved friends camped for a while. They then went away and only returned after a time, when the corpse might be supposed to have become dry. The head and arms were cut off and carried generally by his widow, if he left one, and were then probably buried with her when she died. The leg-bones were used for magical purposes.

With the Omeo Theddora the corpse was interred much as I have described with the Woi-worŭng; but here there was often a side chamber at the bottom of the pit, into which the tightly-corded corpse was thrust. Sometimes a sort of cave was dug in a bank for a grave. For a good instance of burial by this tribe, I am indebted to Mr. John O'Rourke, of Woolgulmerang, near the Snowy River. The account he gave me I have since verified by inquiry from one of those present. This man said as follows:—"When we were at the Snowy River one of the men died. We dug a hole in the river bank, and as we were putting him in it we thought he moved. We were much frightened, and all fell back except old Nukong,[1] who stood forward and said, 'What are you doing that for? why are you trying to frighten us?' We rammed up the hole with wood and stones and earth, and went away."

The Ngarego and Wolgal buried in the same manner; indeed, in the instance just quoted, the persons present were Theddora and Ngarego. With these latter the personal property of the deceased was buried with him—his tomahawk, his paints, amulets and magical substances, such as quartz crystals (*Io-i-a*).

The coast Murring about Broulee rolled up the dead man much as did the Kŭrnai; but before interring him, the corpse was laid at the root of a tall tree, up which the headman (*gommera*) climbed, followed by all the men present. He then shouted out questions to the ghost of the deceased, and was supposed to receive replies—such, for instance, as to the person who had occasioned the death.

In all these cases we find the tightly cording of the dead man, and the belief that his ghost still lingered near or revisited the spot. It seems to me not only that these aborigines believed that the ghost could follow the survivors, but also that the dead man himself, unless tightly bound and buried under tightly-rammed logs and earth, might likewise follow them in the body.[2] Bearing in mind the belief in the existence of the human individual independently of the body, in the power of this "spirit" to wander invisible during the sleep of the body, in the individuality as a

[1] As to Nukong see "Kamilaroi and Kurnai," p. 219.

[2] Buckley was thought to be a dead man named Murrangurk returned to life. He says that when the blacks found him he had a piece of a broken spear in his hand, taken from the grave of Murrangurk.

"ghost" after death, present with the survivors, yet invisible, it is easy to arrive at some of the motives which render these savages so averse to speak of the dead. In one instance, when one of the Kŭrnai was spoken to about a dead friend, soon after the decease, he said, looking round uneasily, "Do not do that; he might hear you and kill me!"

It is also evident that while any one might be able to communicate with the "ghosts" during sleep, it was only the wizards who were able to do so in waking hours.[1]

Ghost-land.—Although the ghosts were supposed to wander, for a time or at will, in their accustomed hunting-grounds, yet their peculiar home was the trans-celestial country. Being disembodied, the *Yambo*, the *Mūrŭp*, the *Būlabong* could for the first time pass from the earthly home of the living to the celestial home of the dead.

The ghosts were indeed in this aspect the departed ancestors, and as such may be supposed to have with them the defunct headmen and wizards of the tribe. The Supreme Spirit—who is believed in by all the tribes I refer to here either as a benevolent, or more frequently as a malevolent, being—it seems to me represents the defunct headman. The *Brewin* of the Kŭrnai is the headman with the attributes of malevolent magic powers.

[1] I cannot resist quoting from a correspondent in Northern Queensland—Mr. J. C. Muirhead, of Elgin Downs. His statements illustrate forcibly what may be called the "theory" of death and burial with the Australian aborigines. I condense very much Mr. Muirhead's account, but I preserve as far as possible his own words:—"When a strong black dies they think that some other black has put a spell on him. The corpse is placed upon a frame and covered over with boughs. These boughs must be of some tree of the same 'class' as the dead. Suppose that he were of the Banbe class division these boughs of the broad-leaved boxtree would be used, for this tree is Banbe. Men of the Mallera class (of which Banbe and Kurgila are the subdivisions) would place the boughs over him. After placing the body on a frame, which is raised on four forked sticks, they carefully work the ground underneath with their feet into dust, and smooth it so that the slightest mark or print can be observed. Then they make a big fire close to the spot and retire to their camp. Before leaving they mark a number of trees so that this 'blazed line' leads back to the frame with the corpse. This is to prevent the dead man following them. The following morning the relations of the deceased inspect the ground under the corpse. If the track or mark of some animal, bird, reptile, &c., is found, they infer from it the totem of the person who caused the death of their relative. For all things belong to one or other of the two great classes, Mallera and Wūthera. For instance, if the track of a native dog were seen they would know that the offender was Banbe = Mallera, for to this sub-class and class does the Dingo belong."

I find that a similar practice obtained among some of the Wimmera River Kŭlin. With them the ground over the grave was carefully smoothed, and in the following morning it was examined for footsteps or tracks, which were held to be those of the culprit. The Jŭpagalk Kŭlin had a somewhat different practice. The wizard of the tribe or lesser tribal group watched at the grave during the night. He was supposed to see the spirit of the offender peeping among the trees and bushes at the grave of the victim; thus recognising the culprit the wizard was in a position to secure vengeance upon him by means of charms, thus bewitching him to death in turn.

The *Bŭnjil* of the Woi-worŭng—indeed I think I may safely say of all the Kŭlin tribes—seems to have been regarded much in the light in which William Beiruk described to me the *Ngŭrŭngæta*, or headman of his tribe, "a man who did no one any harm, and who spoke straight."

Tharamŭlŭn, or *Thrŭmŭlŭn*, or *Daramŭlŭn*, as the word is variously pronounced in the different Murring languages, was the Supreme Spirit believed in from the sea-coast across to the northern boundary claimed by the Wolgal, about Yass and Gundagai, and from Omeo to at least as far as the Shoalhaven River, in a line approximately east and west. He was not, it seems to me, everywhere thought to be a malevolent being, but he was dreaded as one who could severely punish the trespasses committed against those tribal ordinances and customs whose first institution is ascribed to him. He, it is said, taught the Murring all the arts they knew; he instituted the ceremonies of Initiation of Youths; he made the original *Mŭdji* (the *Turndun* of the Kŭrnai); ordered the animal names to be assumed by men; and directed what rules should be observed as to the food permitted or forbidden to certain persons. It was taught to the Murring youths, at their initiation, that a breach of these food rules would not only be visited with dire consequences by the *Io-e-a* (medicine) of the forbidden food animal itself, or by actual punishment by the *gommeras* who in dreams could see the offence committed; but it was taught also that *Tharamŭlŭn* himself watched the youths from the sky, prompt to punish, by sickness or death, the breach of his ordinances. These prohibitions were only relaxed as the youths proved themselves worthy, and in some cases appear to have been perpetual. In speaking to two old men (Wolgal and Ngarego) about the prohibition of certain articles of food, they said that neither of them had ever been permitted to eat Emu eggs, and on my asking what would be the consequence of their doing so, one said, the other assenting, "I could not do that; *He* would be very angry, and perhaps I should die."

The knowledge of *Tharamŭlŭn*, and his attributes and powers, was only communicated to the youths at their initiation, and was regarded as something eminently secret, and not on any account to be divulged to women or children. It is said that the women among the Ngarego and Wolgal knew only that a great being lived beyond the sky, and that he was spoken of by them as *Papang* (father). This seemed to me, when I first heard it, to bear so suspicious a resemblance to a belief derived from the white men that I thought it necessary to make careful and repeated inquiries. My Ngarego and Wolgal informants, two of them old men, strenuously maintained that it was so before

the white men came. They said that the knowledge of the name of *Tharamūlŭn* was imparted to themselves only at their initiation by the old men, and that the women then, as now, only knew of *Tharamūlŭn* by the name of *Papang*. This name of *Tharamūlŭn* is to them so sacred, that even in speaking to me of it when no one else was present but ourselves, the old men have done so in almost whispers, and have used elliptical expressions to avoid the word itself, such as "He," "the man," or "the name I told you of." This I have found exactly paralleled by the reluctance of my Woi-worūng informant to mention the name of *Būnjil* when speaking of his supernatural powers, although he did not show so much reluctance when repeating to me the "folklore" in which the "Great Spirit" of the Kūlin plays a part. He also used the expressions "He" or "Him," and on one occasion went so far as to substitute the Woi-worŭng gesture signs, which mean *Būnjil*. He also said, when pointing out to me the star which is *Būnjil* (Fomalhaut), that when he was a boy about ten years of age, "before the white men came to Melbourne," his grandfather led him out of the camp one night, and pointing to the star with his throwing-stick (*murriwŭn*), said: "You are now growing up, and will soon be able to kill kangaroos and native bears, and you will be a man; you see *Būnjil* up there, and he can see you and all you do down here."[1]

Here, again, I believe that the dread of offending an unseen, powerful, possibly present, spirit, lies much at the root of the disinclination to utter the name of *Tharamūlŭn* or *Būnjil*.

I found that so far as concerned the Theddora the ignorance of *Tharamūlŭn* was not so complete in one sole-surviving woman as the old Ngarego and Wolgal men stated as regarded their women. The Theddora woman said, when I asked her who was *Tharamūlŭn*: "He lives up there (pointing to the sky); I only know that; and also that when the boys are made young men he comes down to frighten them. I once heard him coming with a noise like thunder." She here evidently referred to that part of the initiation ceremonies at which women are not permitted to be present, and at which the *mudjis* (*Turndun*) are swung with a noise which is of course proportionate to their size and construction. I do not know what the size of the instrument was which the Theddora used, but that of their neighbours the Murring was, to judge from one which I have seen, of unusual size, and must have made a very loud roaring noise.

There does not seem to have been any restriction among

[1] This identification of *Bunjil* with Fomalhaut agrees with Mr. Dawson's statement ("Australian Aborigines," Melbourne, 1881). In a former paper, "From Mother-right to Father-right," at p. 16, I gave as one of the totems *a* Aquilæ. I suspect that my informant may possibly have intended to point out Fomalhaut when he showed me Altair

the Kŭrnai, as to the women knowing about *Brewin*. This may be connected with the greater participation of the women in the ceremonies of initiation, which were, so far as I have observed, spoken of before them, with the exception of the three portions at which the *Turndun* was shown to the novices: this was carefully concealed from the women. No Kŭrnai woman ever would call *Brewin* "father"; he was dreaded as being very malignant; but according to William Beiruk, *Bŭnjil* was called *Mamingata* (our father) before the white men came to Melbourne.

Before leaving this part of the subject, it is important to notice, in connection with the belief that the Great Spirit inhabits the land beyond the sky, what are the stories that are told as to his early connection with the tribes. *Bŭnjil*, it is said, left the earth with all his people, and went aloft in a furious wind, which tore the trees up by the roots. *Tharamŭlŭn*, after teaching his people the arts which they knew, and establishing their social ordinances, died, and his spirit (*Bŭlabong*) went up to the sky, where he has since lived with the ghosts. I have not heard any tales told about the ascension of *Brewin*, but the Kŭrnai have a favourite tale how the female duality *Bŭlŭmbaukan*, and their son *Bŭlŭmtŭt*, attempted to steal the fire of the Kŭrnai, and how, being prevented by the crow and the swamp-hawk, they climbed up to the sky by a thread made of the tail sinews of the Red Wallaby.[1]

The ascent of *Bŭnjil* in a furious wind has its analogy in the belief that *Brewin* travels in a whirlwind. To these beliefs is akin the belief of the Woi-worŭng that the wizards could send their deadly magical *yarŭk* (rock crystal) against a person they desired to kill in the form of a small whirlwind. Of the same kind is also the Murring belief that their wizards could blow the *krŭgŭlŭng* (rock crystal) invisibly into their enemies. It seems to have been believed by all that these fatal magical powers were derived by their possessors from *Bŭnjil*, *Brewin*, *Tharamŭlŭn*, as the case might be, and further, that the wizards obtained their deadly powers when they ascended aloft to him.[2]

[1] I might quote other analogous tales from other tribes as to ascents made by throwing up spears and by throwing up cords; but I desire in these notes to keep within the tribal boundaries which I have indicated. All these tales will find their place in the future.

[2] These beliefs as to the whirlwinds are probably very widespread. The Dieri believe that their Great Spirit, *Kŭchi*, travels in the form of a dust whirlwind. When I first saw some of these huge columns of red dust marching rapidly across the desert country west of Lake Eyre, and long before I knew of the Dieri beliefs, I was struck by their weird appearance. They then immediately recalled to my mind the story of the Jin who escaped as a column of vapour from a vase which a fisherman had brought up in his net. Mr. Frank

The Wizards and Ghost-land.—The connection of the wizard class with ghost-land is interesting. I have said that among the Kūlin of Wimmera River a man became a wizard who as a boy had seen his mother's ghost sitting at her grave. Such a wizard was believed to be able to "go up aloft," as my informant put it, and to bring back information from the dead. The "old law" which divided the Woi-worŭng tribe into two classes, *Crow* and *Eaglehawk*, was, according to Beiruk, brought down from Būnjil by the wizards (*Wira-rap*). The Wolgul and Ngarego wizards could also, it was thought, ascend to the sky to interview *Tharamūlŭn*, and to obtain their powers from him. Among the coast Murring the headman, in his character of wizard, was trained up when a boy by some other wizard. Such is reported to me as having been said of himself by the late head *gommera*, Waddyman of Browlee; but the magical powers, the terrible "poison magic," which these *gommeras* professed to have at command came to them from *Tharamūlŭn* himself, with whom they professed to communicate.

Among the Kŭrnai, however, the *Bira-ark*, who is indeed precisely the analogue of the *Wira-rap* of the Woi-worung, appears, so far as my information extends, to have acquired his magical powers when arrived at maturity. One of my Kŭrnai informants has told me the tale, current when he was a boy, of how a celebrated *Bira-ark* became one. It was said that he first dreamed for several consecutive nights that he was present at a Kangaroo Corroboree, and that in the form of a kangaroo he joined in the amusement; following this it was said that he heard continually the distant drumming of the ghosts at their celestial corroborees; finally, one night he was missed from the camp, having been taken up by the *Mrarts* and initiated into their mysteries. The following morning he was found near the camp lying in a state "like sleep," with an enormous log across his back. Being carried to his camp he remained for some time as if asleep, singing of that which he had seen among the *Mrarts*.[1]

James, now of the Victorian Police, and whom I first met with at Blanchewater, in the Dieri country, has told me how, in his knowledge, a young Dieri, having vowed to kill *Kŭchi*, followed one of these dust whirlwinds for a long distance, throwing his weapons into it. He returned completely exhausted, saying that he had killed *Kŭchi*, but that he felt very ill. He shortly after died, as it was believed, from the vengeance of *Kŭchi*.

[1] The full meaning of the Kangaroo dream does not appear of itself. With the Kŭrnai, to dream of kangaroos sitting round the sleeper was to receive a warning of impending danger. The Woi-worŭng and the coast Murring held the same belief, but with the latter it was also the actual animal that gave warning to the man who bore its name. I learn that in this tribe each man's totem could give him warning of coming danger. My informant's totem name being Kanalgar (Kangaroo) he believed that kangaroos could warn him against foes. Among the Kŭrnai and Woi-worŭng the totem names have almost become extinct, but

This account, I think, raises a strong presumption that this man was subject to some form of brain disease. I have no doubt whatever, that although there was very great deceit practised, the *Bira-arks* were much self-deceived, just as many of the spiritists and their mediums of the present day really believe in the truth of their manifestations.

It seems, however, as I have already noted elsewhere, that the manner in which a man became a *Bira-ark* was generally believed to be that being found alone in the forest by the *Mrarts*, they took him up with them and taught him.

It is worthy of notice that in the tribes I am considering the wizards were believed to go up aloft by very similar means. Among the Kŭrnai the statement is always made that the wizard went up in company with the ghosts on something called a *marangrang*, and that he went through a hole in the sky, which was opened by a *Mrart* like a *gwera-eil* Kŭrnai, that is, like a headman.[1] This idea of a hole or door in the sky also appears in William Beiruk's account of the dream. I have not found any of the Kŭrnai who could give any clear account of what this *marangrang* was supposed to be like; the most common definition has been that it was "something like a rope," and that the *Bira-ark* and his attendant *Mrarts* went up on it, or holding on to it. Another statement was that it was like steps, for, said my informant, "it does not touch the ground; you can always hear the *Mrarts* jump down off it." My informant, Tūlaba,[2] spoke of the *marangrang* as a road (*wau-ŭng*), along which the *Yambo* of the dead took its course to the sky.

The tales told of the *Bira-arks* in connection with the *marangrang* are very numerous; one may suffice here as an example. It was related of one *Būnjil Narran* (moon) that when flying across Lake Wellington, in company with the *Mrarts*, on a *marangrang*, he fell off, and would certainly have been drowned had not one of them fished him up with the hook of his throwing-stick and replaced him.

The *marangrang* may, I think, be assumed to have been, in the general opinion, not a rope extending down from the sky to the earth, such as appears to have been the idea of the celestial communication among the Woi-worŭng, nor something like steps or a road, according to some of the Kŭrnai, but something movable. Quite recently a possible explanation has come from an unexpected quarter. I find that the *Turndun* is, among the Ngarego and Wolgal, not only called *Mūdthi* or *Mŭdji*, but also

in the birds and animals which they believed could give them warning of danger I think we may suspect the totems which once existed.

[1] *Gwera-eil* = great, eminent.

[2] See "Kamilaroi and Kŭrnai," p. 191, *et infra*.

Marengrang.[1] Thus, although this word seems among the Kŭrnai to have lost what may have been its original meaning, as the sacred humming instrument, invented first by the Great Head Spirit, it has retained its place among the magical apparatus of the wizard, and as the means by which they, as also the dead, reach ghost-land.

Among the Omeo Theddora, the wizard was supposed to ascend to the sky by means of something "like a spider's web, which he blew out of his mouth."[2]

Among the coast Murring, the *gommera,* in his character of a wizard, was also supposed to mount up by a thread. The present headman of the Bega Murring, who is recognised as their *gommera,* explained to me when inquiring about this that "the old men now dead used to climb up to the sky at night by a thread" about the thickness of a grasshaulm, which he picked up from the ground as an illustration.

Among the Kūlin of the Wimmera River, and the Jūpagalk of the Avoca River, the wizards, according to my informant, used to "go up" at night for the purpose of bringing back information; but I have not yet learned how it was supposed that they ascended.

Generally speaking, the wizards were supposed to be able to ascend and descend in distant places, for the purpose of bringing away the apparatus by which some one of the distant tribe was bewitching one of the wizard's tribe to death (Woi-worŭng, Jūpagalk); or for the purpose of laying spells upon persons in a neighbouring tribe (Wolgal, Ngarego); or for the purpose of spying out the movement of an enemy, and thus being able to surprise them with an armed force (Theddora). Such a belief seems, indeed, a necessary and natural corollary to the belief that the wizard could ascend to the sky.[3]

[1] This is an instance how words unexpectedly crop up in unlikely places. The word *mūng,* which with the blacks of North-Eastern Victoria meant a magical substance, *e.g.,* rock crystal, reappears in a Carpentaria tribe as *mūngern* (wizard). Kŭrnai, which in Gippsland is "man" as restricted to the Gippsland tribe, appears with a similar restricted meaning in the great group of allied tribes located on the deltas of the Barcoo and Diamantina Rivers. Many other instances might be quoted, but no one probably doubts the unity of the Australian languages.

[2] As told to Mr. J. Buntine, J.P., of Toongabbie, by Theddora Johnny, one of the Omeo tribe, who was employed as a stockman. This statement was made as to a headman, Metoko, whose name is now remembered by surviving Maneroo and Gippsland blackfellows as that of a powerful wizard. Mr. Buntine lived at Omeo, shortly after the country was first settled.

[3] Mr. A. L. P. Cameron, of Mulurulu, New South Wales, tells me of the Ta-ta-thi tribe of Moulamein, that "they believe the sky to be a solid vault, up to which a wizard once ascended, and was let in through a window by a *goomatch* (ghost). Some of the doctors, but not all, obtained the power of ascending by chewing a piece of skin which had been cut off the abdomen of a dead woman, whose ghost then carried him up."

It is impossible not to be struck with the resemblance in all their beliefs to accounts which have been handed down by the records of ancient people, and to beliefs still existing in the folk-lore of Europe. The solid vault of heaven finds innumerable parallels everywhere as to its openings into the spirit world beyond. The ascent of mere mortals, or of persons of some class claiming supernatural powers and attributes, is also paralleled in all times and places.

Such beliefs have been common to both Aryan and Semitic peoples. The Australian beliefs which I have now recorded lead to the suspicion that all similar beliefs may have had an origin such as theirs, and that in the legends of peoples we may recognise the natural development of such primitive ideas.

The significance of these Australian beliefs seems to me to be heightened when we reflect that in them we may have conceptions formed by primitive savage man, striving to explain to himself natural phenomena of which he became aware within and without himself, and that these beliefs have then been handed down to us by tribes which for ages have been cut off from contact with more rapidly advancing races; or it may be that we have here the independent origin of ideas which seem to me to be capable, under favourable circumstances, of developing into as complete religious systems as the world has ever seen. In either case the bearing of the evidence cannot, I think, be overrated.

SPECIAL EXTRA MEETING.

JUNE 19TH, 1883.

[*Held by invitation of Mr. C. Ribeiro, at the Piccadilly Hall, S.W.*]

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Members had an opportunity of examining the large collection of objects of ethnological interest obtained by Mr. Ribeiro in Brazil.

Mr. RIBEIRO exhibited the five Botocudo Indians (two males and three females) which he had brought to this country.

Mr. HYDE CLARKE addressed Mr. Ribeiro in Portuguese, and conveyed to him the thanks of the Institute for the permission to examine a collection truly anthropological in its character. This

was not their first association with the anthropologists of Brazil, for on the occasion of the visit to this country of the Emperor Dom Pedro II, the Institute offered him their Honorary Membership in testimony of his services, as a man of science, to science generally, and to anthropology in particular.'

Mr. RIBEIRO replied, and presented to the Institute a small collection of Botocudo weapons, &c., comprising two bows, three long arrows, two bags, and a monkey-pot used for holding water.

These objects were subsequently transferred, by the Council of the Anthropological Institute, to the Ethnological Department of the British Museum.

A paper, descriptive of the Botocudos, was read by Mr. A. H. KEANE, who had prepared it at the invitation of the Council:—

On the BOTOCUDOS.

By A. H. KEANE, Esq., B.A.

Name—Habitat.—Although the term *Botocudo* cannot be traced much further back than the writings of Prince Maximilian von Neuwied,[1] the remarkable people to whom it is now exclusively applied have been known to Europeans from the earliest period of Brazilian discovery. When the Portuguese adventurer, Vasco Fernando Coutinho, reached the east coast in 1535, we learn from the old writers that he erected a fort at the head of Espirito-Santo Bay[2] to defend himself against the attacks of the Tupininquins, Puris, Aimores, and other local tribes. Of these the Aimores,[3] or Aimbores, whose name still survives in the Aimores Coast Range, which stretches from the province of Bahia through Espirito-Santo to Rio de Janeiro, have been clearly identified with the present Botocudos.[4] Their original home comprised most of the present province of Espirito-Santo, and reached inland to the headwaters of the Rio Grande (Belmonte) and Rio Doce, on the eastern slopes of the Serra do Espinhacâo; but they are now confined mainly between the Rio Pardo and Rio Doce (15°–20° S. lat.), and seldom roam westwards beyond the Serra dos Aimores into Minas Geraes. Here they came again into serious collision with the white settlers about the close of the last century, when the rich diamond fields of Minas Geraes began to attract the coast populations towards the interior of Brazil.

It was about this time that the Aimores, whose original name had been forgotten, became generally known as Botocudos, a word about the origin and meaning of which the most fanciful

theories have been proposed.[5] But the most probable derivation seems to be from the Portuguese *botoque*, a barrel plug, and they appear to have been so named from the form of the remarkable wooden plug or disc at that time universally worn as a lip-ornament by all the tribe. In any case Botocudo is a foreign designation, unknown to the natives, who have no collective tribal name, but some of whose clans call themselves Nac-nanuk, or Nac-poruk, that is, "Sons of the Soil" or Autochthones, with which may be compared the Malay Orang-Benua, applied in exactly the same sense to the aboriginal Malay tribes of Malacca and Sumatra. Others were some years ago known amongst themselves as Engerekmung, a word which our guests of this evening still recognise, not as a tribal, but only as a family or personal name. A perfectly parallel case to this is Aw-ben-a-ki ("Eastlander"), formerly the collective name of a powerful branch of the Algonquin family in Lower Canada, and still used as a personal surname by some of the Minsis, an Algonquin tribe originally from Pennsylvania, a few members of whom are now settled near Ottawa.[6] This restricted sense of such names arises, no doubt, from the breaking up of tribes, and their absorption in other communities, when the national designation is often retained by a few individuals, and thus gradually becomes a family or personal name. By a somewhat analogous process *L'Anglais*, *Englander*, that is, "Englishman," have become surnames in France and Germany.[7]

The Tembeitera, or Lip-Ornament.—With regard to the *tembeitera*, as the lip-ornament is called by the Brazilians, it should be mentioned that it is by no means peculiar to the Botocudos,[8] although by them developed to a monstrous size. The disc worn by one of the women of Mr. Ribeiro's company is $2\frac{1}{2}$ inches in diameter, as measured by Professor Flower, and cases are mentioned of 3 inches and upwards. Ear-plugs of great size are also worn, distending the lobe down to the shoulders like great leathern bats' wings. This, combined with their great ferocity and reputed cannibalistic tastes, has always caused the Botocudos to be held in fear and horror, not only by the whites, but also by the Puris, Macharacas, Malalis, Macunis and other surrounding tribes. Prince Maximilian von Neuwied tells us that he was thrilled with horror at his first introduction to a Botocudo chief, whose underlip and ear-lobe were bored through, the lip widely distended horizontally, the lobe hanging down to the shoulders like huge flappers, the body grimy with dirt. Similar ear-ornaments are or have been very common in South and even in Central America, at least as far north as Honduras. When Columbus discovered this last region, during his fourth voyage (1502), he named a part of the seaboard "Costa de la Oreja," from the conspicuously

distended ears of the natives.[9] The early Spanish explorers also gave the name of "Orejones," or "Big-eared," to several Amazonian tribes; and others high up the Tocantins and Araguaya rivers are described as having enormously elongated ears hanging down on their shoulders, an effect attributed by Mr. Alfred R. Wallace[10] to weights suspended from the lobe in youth.

We find a like fashion prevailing from remote times amongst the Indo-Chinese and Malayan peoples of South-East Asia and the Eastern Archipelago, many of whom are noted for the extravagant enlargement of the ear-lobe. The custom is mentioned by Marco Polo, and on this subject Colonel Henry Yule writes that "the Mishmis and Abors of the Assam borders have perforations of the ear-lobe 1 inch in diameter. The Burmese often stick their large cigars in the orifice. Crawford speaks of the enormously-distended apertures in the ear-lobes of the women of Bali. The wild Dayaks of Borneo distend the ear-lobe by heavy earrings till it reaches the shoulder, or even falls below it."[11]

But while in the Old World the excessive enlargement of the lobe seems to be confined mainly to the remote south-east, the lip-ornament, in various forms and sizes, and attached either to the upper or lower lip, or even to both, forms on the contrary a distinctive feature of many African tribes, especially in the Lake Nyassa region, along the White Nile, and in the Chad Basin. "Little Girls," writes the Rev. Duff Macdonald, "have a small hole (*lupelele*) bored in the upper lip. In this they place a stalk of grass, which prevents the hole from filling up. Next they insert a thicker stalk of grass; then by means of bits of twigs, &c., the hole is made larger and larger till it can receive this ring. Hardly any female is without it. They say it makes them look pretty. The bigger the ring the more they value themselves."[12] This description refers to the Ma-Tumbokas and other tribes between Lake Nyassa and the Lower Zambesi, who wear the *pelele* generally in the upper lip. But Schweinfurth tells us that the Bongos, and others on the White Nile, adorn or disfigure both lips with rings, plugs, plates, and tusks. "Not satisfied with piercing the lower lip, they drag out the upper as well, for sake of symmetry. . . . The projections of the ironclad lips are of service to give effect to an outbreak of anger; for by means of them the women snap like an owl or a stork."[13] And again: "As soon as a woman is married, the operation begins of extending her lower lip. This, at first only slightly bored, is widened by inserting plugs of wood, gradually increasing in size until the entire feature is enlarged to five or six times its original proportions. The plugs are cylindrical, not less than an inch thick, and

exactly like the bone or wooden pegs worn by the Mosgu women. In this way the lower lip is extended horizontally until it projects far beyond the upper, which is also bored and fitted with a copper plate or nail, or a little ring, or a bit of straw about as thick as a lucifer match. Nose and ear are also pierced for similar ornaments."[14] So also in the Chad Basin, where Nachtigal speaks of a grotesque adornment of two round metal or bone plates distorting upper and lower lips, giving them a snout-like appearance, and causing them to clatter together while speaking.[15]

The Botocudo lip-ornament, it should be mentioned, is made of the light, carefully dried wood of the barriguda tree (*Chorisia ventricosa*), which by the natives is called *emburé*, whence Augustin Saint-Hilaire suggests the probable derivation of the name *Aimboré*.[16] It is worn only in the under-lip, now chiefly by the women, but was formerly in more general use amongst the men, as appears from Prince Maximilian's statements and illustrations. The operation of preparing the lip for its reception often begins about the eighth year, when the boring is effected by a hard pointed stick and continually extended by the introduction of larger and larger plugs or discs, for both forms appear to be in use.[17] Notwithstanding its lightness the *tembeitera* gradually weighs down the lip, which at first stands out horizontally and even at a slight upward angle, and at last becomes a mere ring of skin formed round the disc. It is removable at pleasure, as I am able to certify through the complaisance of the woman of this company so adorned, and then the lip hangs limp, exposing the teeth, which, by the continual pressure and friction, often became displaced or deformed. With age both lip and ear get torn or worn away in some parts to a mere film, and are then bound together with bast. Yet the people are very proud of these ornaments, and resent the epithet *epsoseck*, or "long ears," applied to them by their Maloli neighbours. But the practice seems to be dying out even among the Bravos, or wild tribes; and it is significant that of Mr. Ribeiro's party one only wears the fully-developed *tembeitera*, and the *betô-apôc*, or ear-plug.

That such a remarkable custom should be found prevailing amongst primitive tribes, both in the Old and New World, is not a little surprising. It is a striking illustration of the extreme danger, often dwelt on by me in this Society, of building up any theories of racial affinity on the mere resemblance of tribal usages, however strange or extravagant they may seem to be. Certainly no one will venture to say that there has been any direct relationship or social contact between the East African and Brazilian peoples at any time during their past existence. It follows that such fashions must have been developed indepen-

dently of each other in these widely separated regions. But on the other hand, they may not unfairly be appealed to in a higher sense by monogenists as an argument in favour of the common origin of all mankind. Such parallel growths, springing up spontaneously in different centres, are at all events more easily accounted for on the assumption of a primordial unity of the human species, than on that of original diversity or plurality of descent, as maintained by the polygenist school of anthropologists.

Type; Affinities.—All the Brazilian and Amazonian tribes have by some ethnologists been divided into two great groups, the TAPUYAS, or true aborigines, now driven into the highlands and more inaccessible parts by the intruding TUPI-GUARANI, of the plains and lowlands.[18] The former are distinguished by great diversity, the latter by absolute unity, of speech. Consequently, by this convenient arrangement all non-Guarani-speaking tribes may be at once classed as Tapuyas, and *vice versâ*. The term "Tapuya" would thus correspond to the equally convenient, but also equally useless, term "Turanian" of the Eastern Hemisphere. At any rate the Botocudos are not in this sense Tapuyas, as should be expected, but clearly of the Guarani stock physically, although of non-Guarani speech. In outward appearance they differ so slightly from the ordinary Guarani type that d'Orbigny, one of the best authorities on South American ethnology, unhesitatingly affiliates them to that stock. The few broad traits with which this master-hand portrays the "Brazileo-Guarani" race—"Couleur jaunâtre, taille moyenne, front non fuyant, yeux souvent obliques, toujours relevés à l'angle extérieur"—might also serve fairly well as a general description of the Botocudos, as may be judged even from the specimens now in London. These specimens also betray the great variety of expression noted even by Prince Maximilian, who tells us that "the features of the Botocudos are as varied and diversified as among Europeans."[19] One of the women, in fact, was so animated, and of such a light complexion, that I felt strongly inclined to regard her as a half-caste until assured by Mr. Ribeiro that she was really a full-blood native, though brought up in a missionary's home, which may partly account for her "brio" and lively temperament.

Apart from this variety of expression the Botocudos may be described in a general way as rather below the medium size, say about 5 feet 5 inches, broad shouldered, with large muscular frames, broad deep torso, remarkably wide thorax, but flat in front instead of convex; arms and legs soft, fleshy, and even effeminate, and terminating with small and delicately formed hands and feet. The features are rather broad and flat, with

prominent brow, high cheek-bone (large zygomatic arches), small nose,[20] deeply sunk at frontal suture, wide nostrils, dolichocephalic head, with very slight prognathism; hair of the universal American and Mongol type, black, coarse, lank, round in section, and worn cut round about 2 inches from the crown, somewhat after the manner of the Coroados Indians. As some diversity of opinion seems to prevail regarding the complexion, I have brought together the subjoined statements from various authorities on the subject:—

Milliet: Whiter than most other Brazilian Indians.[21]

Von Martius: Not merely light or dark ruddy-brown, but almost quite white, and cheeks even pink.[22]

D'Orbigny: Yellower than Guarani.[23]

Vasconcellos: Nearly as light as the Portuguese.[24]

Dana: Whitish yellow.[25]

Prince Maximilian von Neuwied: Light, some even white, with red cheeks.[26]

Vivien de Saint-Martin: Yellowish.[27]

Comparing these statements with Mr. Ribeiro's living specimens we may conclude that the complexion may, on the whole, be described as of a light yellowish-brown. I have heard it in this room spoken of as a drab, a fawn, a buff, a chamois, a light leathery-brown, and so on. But I consider that the yellowish tinge of d'Orbigny is unmistakable, and it is this very yellow complexion which, combined with the above-described features, imparts both to the Guarani-Tupi and to the Botocudo that decidedly Mongolic look which has been noted by most observers. Augustin Saint-Hilaire, who lived some time among them, was much impressed by their general resemblance to the Chinese, and he tells us that the Botocudos themselves detected the "family likeness." They were greatly surprised at the sight of the Chinese coolies, whom they met in the Brazilian seaports, and whom they at once recognised as of their kindred, calling them their "uncles."[28]

On this interesting point of the general outward resemblance of the American to the Mongolic races, let me here recall the language of that great observer and profound naturalist, Alexander von Humboldt: "La race Américaine a des rapports très-sensibles avec celle des peuples Mongoles, qui renferme les descendans des Hiong-nu, connus jadis sous le nom de Huns, les Kalkas, les Kalmucks, et les Bouratts [Buriats]. Des observations récentes ont même prouvé que non seulement les habitants à Unalaska, mais aussi plusieurs peuplades de l'Amérique méridionale, indiquent par des caractères ostéologiques de la tête un passage de la race Américaine à la race Mongole."[29]

Culture, Weapons, Nose-Flute.—Some few of the Botocudos

have become *mansos*, that is, civilised, and are now settled in separate communities, with *aldeamentos*, or villages, as head-quarters, about Linhares and some other parts of Espirito-Santo. But the great bulk of the nation is still in the savage state, forming the most numerous and one of the fiercest wild tribes in East Brazil, where they are said to number from 12,000 to 14,000 souls. During the earlier frontier wars, from about 1790 to 1820, every effort was made, not merely to reduce, but to extirpate them, root and branch. Being regarded as irreclaimable savages, addicted to cannibalism and other pagan practices, and altogether no better than wild beasts, methods of warfare were adopted against them which are not usually sanctioned by civilised communities. The small-pox virus was industriously spread amongst them, and poisoned food scattered over the forests frequented by their hunters. By these and other means the Conde de Linhares cleared the coast districts about the Rios Doce and Belmonte, and another Commendador boasted to Professor Hartt that he had either slain with his own hands, or ordered to be butchered with knife, gun, and "poison," many hundreds of this "vermin."[30]

All the *bravos*, that is, the independent wild tribes, are still in the stone age, or rather, have scarcely yet reached this stage. The highly-finished diorite, granite, and porphyry hatchets, knives, spades, mortars, &c., comprised in Mr. Ribeiro's valuable ethnological collection, belong to the various Amazonian and other more advanced Brazilian tribes mentioned in his catalogue, and nearly all of whom I have been able to identify. Such are the Pamari of the Purus river; the Hypurinas of the Chiwene, a Purus affluent; the Conibos of the Jurua, and thence to the headwaters of the Purus; the Uaupés, very numerous on the Rio Negro; the Araras of Matto Grosso and Para; the Parentintins of the Madeira river. None of the objects in question appear to be used by the Botocudos, all of whose implements, beyond a solitary stone pebble, are of wood or vegetable fibre. They are chiefly wooden mortars, bamboo water-vessels, bags of cotton or bark, reed spears, bows and arrows, which last are their only offensive weapons. The bow is about 6 feet long, and so strong that none but natives can use it. The arrows are of three kinds, barbed, feathered, and often of great length. It is often stated that in East Brazil the only people that use poisoned arrows are the Caimacans (Camacans), a large family in Bahia and Minas Geraes. But I am assured by Mr. Ribeiro that the same practice also prevails among the Botocudos, who display extraordinary skill in the use of these weapons. During the early wars the Portuguese soldiers had to be protected against them by the *gibao d'armas*, a kind of armour made of cotton

cloth, thickened with several layers of cotton wadding. Prince Maximilian, who figures some of these armed warriors, mentions that on one occasion, in order to test the strength of the armour, a Botocudo was allowed to shoot an arrow at a soldier. The dart failed to penetrate to his body, but gave him such a violent shock that the experiment was not renewed.

An instrument of a more peaceful character is a small bamboo flute, which is played on through the nose. This strange habit was probably occasioned by the *tembeitera*, which prevented the lips from being conveniently used for the purpose. Similar nose-flutes are common in India and other parts of the East, where the custom has been explained by the caste system. But however this be, we have here another instance of apparently eccentric customs originating in independent centres.

Sexual Relations.—The Botocudos are described as polygamists. But it would be more correct to say that there are no regular alliances at all, as understood in properly constituted societies. They have certainly advanced beyond the stage of promiscuous intercourse, if that has to be regarded as the primitive condition of Haeckel's *Homo primigenius*. But their unions, formed mainly for convenience and the preservation of the tribe, are all of a purely temporary nature, contracted without formalities of any sort, dissolved on the slightest pretext, or without any pretext, merely through love of change or caprice. Nevertheless, while they last they often give rise to outbreaks of extreme jealousy and passion on the part of the men. The women have not yet acquired the right to be jealous, a sentiment implying a certain degree of equality between the sexes. In case of real or suspected infidelity to their ephemeral masters, they are constantly subjected to the most barbarous treatment, beaten with clubs or hacked about with bamboo knives. One of the women in Mr. Ribeiro's party was frequently subject to usage of this sort, as is sufficiently attested by the numerous scars and gashes still visible on her arms, legs, and whole body.

All the hard work of the household also falls to the share of the women, who are described as submissive—we should probably say apathetic—and kind to their children, whom the men often "kidnapped," and sold for a little rum or tobacco to the whites before the abolition of slavery in Brazil. Families are said to be comparatively large, four or five children being common enough. This statement, however, it may be presumed, refers only to the Mansos, amongst whom alone the family, in the strict sense of the word, can be said to exist. Infanticide also, so prevalent amongst the Amazonian tribes, is said to be extremely rare, which may help to explain the survival of the race in spite of the systematic efforts made to extirpate them

during the first decades of the present century. Now, however, they appear to be yielding to the more insiduous influences of alcoholic drinks, epidemics, and the other usual results of contact with a "superior culture."

Dwellings, Food, Industries, Tribal Organisation.—Their dwellings are of the simplest description—mere hovels, loosely put together of branches stuck in the ground, bound together with bast, and seldom exceeding 4 feet in height, yet often accommodating two or more families. They lead a purely nomadic life, roaming naked in the woods in quest of food, which includes all edible roots, batatas, berries, honey, frogs, lizards, snakes, grubs, and larger game, cooked sometimes in huge bamboo canes, which, with a little care, can be made to hold boiling water. They had formerly no hammocks, sleeping without any covering, either on the ground strewn with bast, or in the ashes of the fire kindled to cook the last meal. Their industries were limited to basket-work and the preparation of their weapons and bowstrings, which were made of the bast of the *Ambaiba Cecropia*, as among the Goyatacas (Von Martius). Small canoes also are made, either of bark or of the barriguda tree, by scooping out the trunk with fire.

There is, of course, no common bond of union between the different clans, which are grouped in separate communities of from ten to twenty families, occupying no fixed territory except certain hunting-grounds, which are tacitly recognised by the neighbouring tribes. Any encroachment on these lands leads to tribal disputes and quarrels, which are usually settled by a sort of duel between the champions of the respective factions, but which also end occasionally in a free fight all round. A successful champion often becomes the chief or headman of the community, but he enjoys little personal authority, nor is the office hereditary, so that it is difficult to conceive a lower state of social organisation.

Cannibalism.—The charge of cannibalism frequently brought against these tribes by former writers, and still imputed to them by their neighbours, seems to be amply justified by abundant evidence. D'Orbigny tells us that they wore collars or strings of the teeth of the persons they had eaten, and the portrait of a woman so ornamented is figured in Sir W. Ouseley's "Travels." Von Martius also states positively that all were formerly anthropophagists, devouring not only the enemy slain in battle, but also members of the Puri, Malali, Coroado, and other kindred tribes. The heads were not eaten, but stuck as trophies on stakes, and used as butts for the practice of archery.

Burials, Religious Notions.—Regarding their methods of interment accounts differ, whence it seems probable that the practice

varies in the different tribes. Some are represented as burying their dead in a horizontal position, a few feet below the surface (Prince Maximilian[31]); others in an upright or seated attitude, with crossed arms, in swampy places, or in the hut, which, as amongst the Ainos, is then abandoned (Aug. Saint-Hilaire). Their weapons, or other objects belonging to them when alive, are not deposited with them, but fires are kept up for some time at the graves, apparently to scare away evil spirits. From this it might seem that, contrary to the generally received opinion, the Botocudos possess some notions of the supernatural. But perhaps it would be more correct to say that, at this low state of their evolution, these savages have not yet realised the distinction between the natural and supernatural. By attributing to them more elevated ideas we are merely judging them by our own standard, which is itself often sufficiently crude. All savages, however degraded, if they are capable of reflecting at all, are compelled to think and reason about the dreams and visions of their sleeping hours, and about the natural phenomena surrounding their daily existence. These they naturally attribute either to the shades of the dead, whence ancestry worship, one of the oldest forms of religion, or else to invisible beings, superior perhaps, but still resembling themselves—some friendly, others hostile, but all entering into the normal conditions of things. Thus in its ultimate analysis this pretended belief in the supernatural is reduced to a pure system of anthropomorphism, in which the order of the universe is kept together or disturbed, as the case may be, by *human*, or *quasi-human*, agencies. The *superhuman* is altogether a later differentiation, quite beyond the mental capacity of the true savage.

Nevertheless the Visconte d'Itabayana does not hesitate to credit the Botocudos with a philosophy, or theory of the universe, based on the two time-honoured principles of good and evil. For them the sun (*toru-shom-pek*=day-fire) is supposed to be the good, the moon (*toru-guenket*=night-fire) the evil principle. Hence the latter alone is to be feared and worshipped or honoured; for, here as elsewhere, *timor fecit deos—aut demones.* In this there may be some truth, for we find that amongst most savage tribes the good spirits, being harmless, or already well disposed, do not need to be invoked, whereas the evil spirit must be conjured and propitiated by all manner of rites and sacrifices. Thus has demonology everywhere preceded theology.

In any case there seems to be little doubt that the Botocudos attribute all baneful manifestations to the moon, which causes the thunderstorm, and which is supposed at times itself to fall on the earth, crushing the hill-tops, flooding the plains, and destroying multitudes of people. During storms and eclipses arrows

are shot upwards to scare away the demons of the air, or perhaps the devouring dragon, a practice which Dr. Harmand tells us prevails also among the Khas (wild tribes) of Indo-China, and which still lingers even amongst many peoples of higher culture. Beyond this they have of course no conception of a Supreme Being, or creative force, the terms *yanchong, tapan*, &c., said to mean "God," standing merely for spirit, demon, thunder, or at most the thunder-god. But it is difficult to arrive at the truth on these points, as they are topics on which, through superstitious motives or euphuistic notions, they are extremely reluctant to speak.

Language.—The state of their intellect may be gauged by the fact that their arithmetic does not get beyond the number *one* (*mocenam*). *Two* is expressed by *uruhu* or *ruhu*, which, however, simply means "much," "many," and which, reduced to the syllable *u*, is used as an adjectival reduplicate postfix to convey the idea of great size. Thus: *wat* = river; but *wat-u-u-u* = great-great-great-river = sea. The language is full of such expedients, and the women especially are constantly introducing fresh reduplicate forms into their songs, wailings, and oratorical efforts.[32] There are also numerous onomatopœic words, as in the case of all undeveloped speech; and the language is otherwise characterised by extreme simplicity of structure, harsh consonantal combinations, slurred vowel and nasal sounds—these last being attributed to the lip-ornament, which drives the dentals up to the palate, whence they escape through the nostrils. New words of all kinds are also easily introduced, and the French engineer, Victor Renault, who lived a long time amongst them, tells us how on one occasion a word happening to be mispronounced at first caused great laughter. Then it began to be repeated as a capital joke, till at last its origin was forgotten, it ceased to be a joke, and settled down as the accepted form of the word. Thus has it ever been with human speech, still the slave of custom, *usus*—

"Quem penes arbitrium est et jus et norma loquendi."

These are important points, as showing how very evanescent all languages must needs have been in the early stages of their development. Hence we are the less surprised when we are told that the Botocudo tongue is radically distinct from those of all the surrounding tribes. Assuming its possible original identity either with the Tupi-Guarani, the Camacan, Puri, Macharaca, or any other Brazilian language, a few generations of complete isolation would probably be quite sufficient to efface all traces of resemblance with the parent stock, and make it appear as a fundamentally distinct form of speech. So changed and modified have most of the native idioms become in Brazil, that the Portu-

guese say of them generally: *Não tem lingua; fallão só em geringonza*—that is, "They have no language, but only talk gibberish." Amongst the Botocudos themselves a great diversity of speech prevails, a circumstance which helps to explain the serious discrepancies sometimes observed in the few short vocabularies published at different times by Balbi, Von Martius, and Jomard. Thus:—

	Balbi (1826).	Jomard (1846).
Sun	*taro-di-po*	*toru-shom-pek*
Moon	*taru*	*toru-guenket*
Earth	*m'poron*	*nak*
Water	*manhan*	*mignam*
Fire	*jompak*	*shom-pek*
Mother	*ciopu*	*jiopon*
Eye	*cetom*	*keton*
Nose	*cigin*	*kijin*
Tongue	*cghigitioch*	*kishok*
Tooth	*ghium*	*kijum*, &c.

It should be stated that Jomard's list was obtained from the two young Botocudos brought to Paris by Marcus Porte in 1846. It was printed at the end of his "Notes sur les Botocudos, accompagnées d'un Vocabulaire de la Langue," which was published in the "Bulletin de la Société de Géographie" for December of the same year. In it are given several curious compound terms, illustrating both the structure of the language, and the idiosyncrasy of the people. Thus:—

Horse	= *kraine-joune*, *i.e.*, "head-teeth."
Ox	= *po-kekri*, *i.e.*, "cloven-foot."
Ass	= *ngo-youne-grak-oroñe*, *i.e.*, "long-eared beast."
Forefinger	= *nipo-jik*, *i.e.*, "arrow-finger."
Big-toe	= *po-jiopon*, *i.e*, "foot-mother,"[33] &c.

Craniometry.—In Mr. Ribeiro's collection there are half-a-dozen Botocudo skulls, in a good state of preservation, but which have not yet been carefully examined. Craniological studies of this race have, however, already been made at different times by Virchow, Moschen, Weymann, and Lacerda, and quite recently Senhor J. Rodrigues Peixoto, of Rio Janeiro,[34] has published a detailed account of ten Botocudo crania (six male and four female) from Espirito-Santo and Minas Geraes, and in one instance from Santa-Catharina, where some of the tribe are also said to exist.[35] Apart from a few abnormal traits, due probably to crossings, Peixoto's description corresponds on the whole fairly well with the recognised fundamental characters of the Botocudo cranial type. These appear to be prominent glabella and superciliary arches; keel or roof-shaped vault; vertical lateral walls;

simple sutures; receding brow; deeply depressed nasal point (root of nose at naso-frontal suture); dolichocephalic; rectangular form of the orbits; prognathism; massive lower jaw, with nearly right inferior maxillary angle. The mean cranial capacity is given at 1,480 and 1,212 cubic centimetres for men and women respectively, the latter falling as low as 1,140, the former rising to 1,625. This enormous difference in the capacity of the two sexes is, however, at variance with the conclusions of other observers. The cranium is distinctly dolichocephalic, with mean index 73·30 for males, and 74 for females, and extremes 71–79, the latter consequently sub-dolichocephalic. But the most remarkable feature is the extreme prognathism of the upper maxillary, indicated by an alveolo-subnasal angle of 61° for men, and 62°·75 for women. This feature, which would almost assimilate the Botocudo to the Hottentot type, could not certainly be suspected in the living subject, judging at least from those of Mr. Ribeiro's company, whose prognathism seems to be of a very unpronounced type. In consequence of its dolichocephalic, and even hypsistenocephalic, character (long antero-posterior and vertical diameter combined), Peixoto allies the Botocudo skull to that of the fossil man of Lagoa Santa. On the other hand, the leptorhine form of the nose (nasal index 46·76) induces him to affiliate the race to the leptorhine Sambaquis of the South Brazilian provinces, so that on craniometrical grounds he concludes that the Botocudos are a mixed people resulting from the fusion of the extinct Lagoa Santa and still extant Sambaqui stocks. It may be mentioned that these Sambaquis seem to be identical with, or at all events a branch of, the widespread Parana nation somewhat vaguely known as "Bugres," who are no doubt of Guarani-Tupi stock. Other tribes, known to the whites by the same name, are found as far north as the province of Bahia, and some of them, we are told, wear a lip-ornament like that of the Botocudos,[86] with whom they are often associated. Hence Peixoto's studies would so far confirm the general conclusion that Botocudos, Bugres, Sambaquis, all constitute one ethnical group, closely allied to the great Tupi-Guarani family.

NOTES.

[1] "Reise nach Bresilien," Frankfort-on-Main, 1820, 3 vols.

[2] So named by Coutinho because discovered by him on the feast of the "Holy Ghost" (Whit-Sunday), 1535.

[3] Not to be confounded with the Aymaras of Bolivia, with whom they have nothing in common.

[4] Thus Balbi, amongst others: "Les Botecudos, ou Botocoudys, connus jadis sous les noms, d'Aymorès, Aimbores ou Ambourès" ("Atlas Ethnographique," xxvii, 201).

[5] Milliet derives it from the Portuguese *boto* and *codea*: "Por isso que os Indios d'este nacão erão rolhos e trazião o corpo coberto d'uma *codea* de gomma

copal, com que se pintavão!" ("Diccionario do Brazil," vol. i, p. 162). Others have associated it with the words *betó* and *betó-apóc*, the respective native names of the national lip and ear ornaments.

[6] The chief of these Minsis, who was in London last year on business connected with the tribe, called himself Aw-ben-a-ki; but he had no knowledge of any kindred tribe now so named.

[7] It is curious to note that while *England* is a well-known family name in the south of Ireland, whence the famous Dr. England, Bishop of Charleston, *Ireland* is an equally common surname in England. Parallel cases are Ffrench, Francis, Francesco, Scott—this last dating from the time when Scotia = Hibernia, as in the mediæval names John Scotus Erigena, Duns Scotus, &c.

[8] Thus of the Tapuyas, a large nation widely diffused throughout Maranhão and Ceara, and by some allied to the Aimores, we read that "trazião mettidas em buracos, que fazião nas orelhas e no beiço inferior, rodellas de madeira" (Brito Freire, quoted by Milliet, vol. ii, p. 689).

[9] H. H. Bancroft, "History of the Pacific States" (San Francisco, 1882), vol. i, p. 211.

[10] "Travels on the Amazons."

[11] "Notes on Analogies of Manners between the Indo-Chinese Races and the Races of the Indian Archipelago," in "Journ. Anthrop. Inst.," February, 1880.

[12] "Africana" (Edinburgh, 1882), vol. i, p. 17.

[13] "Heart of Africa," vol. i, p. 407. He adds that circular plates, nearly as large as a crown piece, made of quartz, ivory, or horn, are inserted into the lips, that have been stretched by the growth of years, and these often rest in a position that is all but horizontal. When the women want to drink, they have to elevate the upper lip with their fingers, and so pour the draught into their mouths. And at page 409, mention is made of the Lubah women (Mittu tribe) who, "not content with the plate or ring, force a cone of polished quartz through the lips as though they had borrowed an idea from the rhinoceros. These are over 2 inches long, and sometimes worn by the men."

[14] *Ibid.*, p. 296.

[15] "Diese haben allmählich eine schnauzenförmige Bildung der Lippen zur Folge und schlagen beim Sprechen klappernd auf einander, was der an wunderlichen Zisch-Hauch-und Kehl-Lauten ohnehin schon reichen Sprache einen noch seltsameren Klang verleiht" ("Sahara und Sudan," Part II, p. 531). The Sonrai women of the same region wear a small glass cylinder in the upper lip pierced for the purpose.

[16] "Voyages dans l'intérieur du Brésil" (1816–21), Paris, 1830.

[17] At least in Prince Maximilian's chief illustration, it is distinctly figured as a plug or cylinder. Such an object might well suggest comparison with a "botoque," and thus so far confirm the above-mentioned derivation of the word *Botocudo*.

[18] "D'Après Gonçales Dias, qui s'est fait simplement l'interprète de l'opinion populaire, les tribus Brésiliennes descendraient de deux races absolument distinctes: la race conquérante des Tupi [Tupi-Guarani], qui habitait surtout le bord de la mèr et les vallées des grands fleuves, et la race vaincue, pourchassée, des Tapuyas, qui vivait surtout dans les forêts de l'intérieur" (Vivien de Saint-Martin, vii, p. 517).

[19] "Reise nach Brasil," vol. ii, p. 4, ed. 1820.

[20] Due possibly to artificial deformation, for Topinard at least speaks of the "déformation nasale," or flattening of the bones of the nose, practised by the Botocudos" ("Anthropology," p. 183).

[21] "São mas brancos que a maior parte dos demais Indios do Brazil" (*op. cit.*, vol. i, p. 162).

[22] "Haut nicht sowohl heller oder dunkler röthlichbraun als beinahe völlig weiss und auf den Wangen sogar röthlich gefarbt" ("Ethnographie Amerikas," zumal Brasiliens, Leipzig, 1867, vol. i, p. 318).

[23] "L'Homme Americain."

[24] *Op.* 1662, quoted by Von Martius.

[25] "American Encyclopædia," Art. *Botocudos*.

[26] *Op. cit.*, vol. ii, pp. 4 and 66.
[27] "Nuance jaunâtre de la peau" (*op. cit.*, p. 517).
[28] "M. Aug. Saint-Hilaire raconte que les Botocudos qui rencontrent des Chinois dans les ports du Brésil, frappés de leur ressemblance avec eux, les désignent comme leurs oncles" (Hollard, "L'Homme," p. 197). A parallel case is that of the Bashkir soldiers of Orenburg, who formed part of the Russian army sent to put down the Hungarian revolt of 1848, and who recognised their Ugrian kinsmen in the Zeklars and other Magyars now settled in the Danube basin.
[29] "Vues des Cordilléras," vol. x, p. 7.
[30] "Geology and Physical Geography of Brazil" (Boston, 1870), pp. 577–606.
[31] Prince Maximilian, vol. i, p. 333.
[32] A similar linguistic faculty has been developed amongst the women of the Zulu Kafir tribes, who often invent new words on the impulse of the moment, these words afterwards becoming adopted as current forms.
[33] Compare the expressions "father-toe," "mother-toe," "baby-toe," &c., of English nurses.
[34] "Novos Estudios Craniologicos sobre os Botocuds" (Rio Janeiro, 1882).
[35] But here often confounded with the Bugres of that region.
[36] "Algumas tribus d'estes Indios furão o beiço inferior como os Botocudos" (Milliet, *op. cit.*, vol. i, p. 175).

The ETHNOLOGY *of* GERMANY.—PART VI.

THE VARINI, VARANGIANS, AND FRANKS.—SECTION II.

By HENRY H. HOWORTH, Esq., F.S.A.

[*Section I. of Part VI. appeared in the Journal for May*, 1883, *Vol. XII., p.* 525.]

THE first undoubted mention of the Franks in history is during the reign of the Emperor Gordian III (238–244). Vopiscus, in his "Life of Aurelian," tells us that being the tribune of the 6th or Gallican Legion at Mayence, Aurelian so punished the Franks, who had been harrying throughout Gaul (quum vagarentur per totam Galliam), that 700 of them were killed and 300 made captive and sold *sub corona*—(*i.e.*, with crowns of flowers about their heads in the usual fashion, Vopiscus, ch. vii). This was about the year 238 A.D. In 241, on the occasion of the victories won over the Persians, this defeat of the Franks was celebrated in a triumphant song, of which Vopiscus has preserved some phrases: "Mille Francos, mille Sarmatas semel et semel occidimus: mille, mille, mille, mille, mille, Persas quærimus." This notice, it will be seen, puts the Franks close to Mayence, and therefore near the outlet of the Maine into the Rhine; and they were therefore probably Ripuarians. A few years later, when Gallienus had mounted the throne, we read how the Franks,

having ravaged Gaul, invaded Spain, and having devastated and nearly destroyed the town of Taragona, a portion of them went even as far as Africa (Victor de Cæsaribus, xxxiii; Eutropius, ix, 7). The passage clearly shows the Franks were not unacquainted with navigation, and in fact it has been suggested that their route was along the coasts of Gaul and Spain, and thus through the Straits of Gibraltar to Africa, and not through central Gaul and Spain at all—a view which is not impossible. Zonaras tells us Gallienus fought with the Franks (*op. cit.*, xii, 24). Shortly after we find Postumus, who commanded the barbarians in Gaul, raising the standard of revolt against Gallienus, and employing Celts and Franks in his army (Treb. Poll., in vit. trig. tyrann., 3). Aurelian, having mounted the throne, drove the Germans out of Gaul. In the short reign of Tacitus they once more crossed the Rhine, but were driven out again by Probus. Zosimus tells us (i, 76) how he fought against the Franks in the year 277, and Vopiscus refers to his victories over them in inflated phrases: "testes Franci inviis paludibus, testes Germani et Alemanni, longe a Rheno submoti littoribus" (Vopiscus, in Prob., 12). Vopiscus says he re-conquered sixty cities (!!) from the Germans, which they had taken; killed 400,000 men (!!!), and captured 16,000 prisoners; forced nine of their kings to be suppliants on their knees for his pardon; built forts, and placed garrisons among them, and compelled them to give hostages, or rather to make over troops, whom he distributed as frontier guards. No doubt among the Germans thus conquered by Probus were many Franks. These triumphs he reported in letters he addressed to the Roman Senate, which are preserved by Vopiscus (Dom Bouquet, i, 540, 576).

The Franks afterwards asked the emperor to find them settlements. He accordingly planted a body of them on the Pontus, (? about Varna, which apparently preserves the name of the Varini). A portion of them having collected a great fleet, they devastated the greater part of the coasts of Greece and Asia Minor; then sailed westwards, ravaged the coasts of Sicily, and captured Syracuse; then went over to Africa, and having visited Carthage, returned again (Zosimus, Dom Bouquet, i, 576; Eumenius Paneg., ch. 18; Dom Bouquet, i, 714). This was assuredly an astounding expedition, worthy to rank with the famous campaign of the Norsemen against the Moors in the ninth century. It is surely incredible that any but a maritime nation could have compassed such a feat, which was especially worthy of the Varings.

In the year 280 two usurpers rose in Gaul against Probus—Bonosus and Proculus. The latter claimed to be of Frank origin, and fled to the Franks for refuge; but he was betrayed by them,

"ipsis prodentibus Francis, quibus familiare est ridendo fidem frangere" (Vopiscus, *op. cit.*; Dom Bouquet, i, 541). Here, as has been remarked, we already find a Frank in a position of importance in the Roman service.

We now come to the time of Carausius, of whom we read in Eutropius that he was of the humblest birth, but rose on account of his military talents, and was appointed to the command of the maritime tract of Belgica and Armorica, with his headquarters at Bononia, in order to protect those coasts from the incursions of the Franks and Saxons. He captured many of them, but as he remitted no booty to headquarters, nor yet restored it to those from whom it had been plundered, it began to be suspected that he was in league with the invaders, and shortly after, Maximian having ordered him to be killed, he assumed the purple (Eutropius, *sub ann.* 280; Dom Bouquet, i, 573). Here again we have a piratical maritime nation, assailing the borders of Gaul in company with the Saxons, the very next neighbours of the Varini, in their quarters at home beyond the Elbe.

Mamertinus, in his panegyric on Maximianus Hercules, tells us how the Franks went to him with their king, seeking peace. This was about 288 A.D. (Dom Bouquet, i, 711). Valesius calls this king Atech, attributing to this event another passage of Mamertinus as follows: "Per te regnum recepit Genoboudes: Atech vero munus accepit. Quid enim aliud ille expetivit, in conspectum tuum cum omni sua gente veniendo, nisi ut tum demum integra auctoritate regnaret quum te, Maximiane placaasset (*id.*, note *e*).

Eumenius extols Maximian for having pacified the Læti (*vide infra*) and Franci: "Sicut postea tuo, Maximiane Auguste, suctu Nerviorum et Trevirorum arva jacentia Lætus postliminio restitutus, et receptus in leges Francus excoluit" (*id.*, 714). This is dated by the Benedictines in the year 291.

We next read of the Emperor Constantius, who was appointed Emperor of all Gaul in 292, attacking the Franks who had wandered into and occupied the Batavian island. Eumenius tells us how they had done so under the auspices of a former native of the island ("sub ipso quondam alumno suo"), *i.e.*, no doubt, as every one is agreed, of Carausius. We saw in the former paper how he settled the Saxons along the southern shores of Britain. It would seem, therefore, that on either side of the Channel he was the means by which the Teutonic invaders began to be colonised within the borders of the empire. Eumenius goes on to say that the invaders were defeated by Constantius, who transported them within the borders of the empire and settled them down within its limits: "ipsas in Romanas trans-

tulit nationes ut non solum arma sed etiam peritatem ponere cogerent" (Dom Bouquet, i, 715). Ammianus Marcellinus says they were settled in the district of Toxandria (*vide infra*); there they were settled, no doubt, in the same way that the Saxons were in Britain, as military colonists ("milites limitanei et riparii"), the Liti and Læti of subsequent writers.

Constantius had also encountered a body of Franks beyond the Channel. They were mercenaries, who were in garrison in London, and had doubtless been in the service of Carausius and Allectus. Constantius defeated and drove them away, much to the joy of the Londoners. The words of Eumenius are: "Quiquid ex mercenaria illa multitudine barbarorum proelio superfuerat, cum direpta civitate fugam capesse cogitarent, passim tota urbe confecerint; et non solam provincialibus vestris in cæde hostium dederint salutem, sed etiam in spectaculo voluptatem. O victoria multijuga et innumerabilem triumphorum, qua Britanniæ restitutæ, qua gentes Francorum penitus excisæ" (Eum. Pan., Constant., xvii; Dom Bouquet, i, 714).

From these notices it will be seen that the Franks were already divided into two well-marked bodies—one of them settled on the Lower Rhine, near the Batavian island, and doubtless largely recruiting the freebooters in the English Channel; the other body on the Upper Rhine, near Mayence.

The victory of Constantius over the Franks on the Batavian island is referred to by Eumenius in two other passages, in which he praises the deeds of Constantine his son. In one he refers to his father's doings thus:—"Multa ille (Constantius) Francorum millia, qui Bataviam aliasque cis Rhenum terras invaserant, interfecit, depulit, cepit, abduxit" (Eum., c, 4; Dom Bouquet, i, 714). Again, in a later chapter he says: "Quid loquar rursus intimas Franciæ nationes non jam ab his locis, quæ olim Romani invaserant sed a propriis ex origine suis sedibus, atque ab ultimis barbariæ litoribus avulsas, ut in desertis Gallia regionibus collocatæ et pacem Romani imperii cultu juvarent et arma dilectu?" (Dom Bouquet, i, 715.) This is the first mention known to me of the term *Francia*, as a territorial name. The editor of the work, already so often cited, on the Historians of France, says that the term would appear at this time, from a poem of Ausonius, composed in the year 379, to have referred to a district east of the Rhine:—

> "Jane veni, novus anne veni, renovate veni sol,
> Hostibus edomitis, qua Francia juncta Suevis
> Certat ad obsequium Latiis ut militet armis."

Also, in another poem on the Moselle:—

> "Accident vires, qua Francia, quasque Camaves,
> Germanique tremant."—(Dom Bouquet, i, 715, note *b*.)

Constantine the Great laid a heavy hand on the Franks. Eutropius tells us how he killed many of them and of the Alemanni, captured their kings, and cast them to the wild beasts in the circus: "Captisque eorum regibus, quos etiam bestiis cum magnificum spectaculum muneris parasset, objecit" (Eutropius, x, 2). This was in his first year, *i.e.*, 306. Eumenius refers to this in fulsome terms. He tells us the two kings who were exposed in the circus at Trèves were called Ascaric and Merogaisus. (So Zeuss reads the very corrupt sentence in which the names occur. The MSS. read as follows:—"Asacari cinere gaisique, Asacari cumero geasique, Assaccari cymero craisique, Asacari cymero gaisique." Zeuss, 339, note). Of their subjects who were captured, those whom perfidy made unfit for soldiers, and their ferocity for slavery, were made a spectacle of, and wearied the ravening hearts by their multitude. By these means Constantine pacified the valley of the Rhine, and converted it into an Arcadia. Listen to his praises. Speaking of the Franks he says: "Ubi nunc est illa ferocia? Ubi semper insida mobilitas? Jam ne procul quidem Rhenum audetis accolere, et vix securi flumina interiora potatis. Contra hinc per intervalla disposita magis ornant limitem castella, quam protegunt: arat illam terribilem aliquando ripam inermis agricola, et toto nostri greges flumina bicorni mersantur. Hæc est tua, Constantine, de Ascarici Regaisique supplicio quotidiana atque aeterna victoria, omnibus quondam secundis præliis anteponenda" (Eumenius, "Paneg. de Const.," xi; Dom Bouquet, 715).

Twenty years later the victories of Contantine inspired the panegyrist Nazarius, who spoke of them in fulsome terms:—"Tu ferocissimis regibus Ascarico et comite suo captis, tanta laude res bellicas auspicatus est, ut jam inauditæ magnitudinis obsidem teneremus" (Dom Bouquet, i, 721).

Constantine also made a bridge over the Rhine, on which he placed a flotilla to overawe the Franks, *i.e.*, no doubt, the Ripuarians (Eumenius, Dom Bouquet, i, 715).

The Franks were not, however, entirely crushed, for in the year 309, on the rebellion of Maximian, when Constantine had to leave the Rhine and march against him, we are told the Franks again broke out; but he speedily returned, and they were as speedily penitent (Eumenius, Dom Bouquet, i, 716).

This secured peace with them for the rest of his reign. After his death they again began to be turbulent; we read how, in 341, his son Constans fought against them with varying success, while the following year he defeated them, and peace was made with them (*ex* "Chron. Hieron. Presby. de Gallis." Idacius, in the "Fasti Consulares," says the same, Dom Bouquet, i, 610).

Libanius, the rhetorician, in lauding the deeds of Constans, says the Franks received overseers; *arkhontes* he calls them (Perry, "Franks," 53, note 2).

In 351, the usurper Magnentius, who was of German descent, and perhaps a Frank, was assisted by the Franks and Saxons, who lived, we are told, beyond the Rhine and the Western Sea; meanwhile the Gallic towns and the fortresses on the Rhine were left defenceless (Julian, *ex* Oration. 1, in Constantium; Dom Bouquet, i, 723). Zosimus tells us Magnentius was sprung from the barbarians, and lived among the Læti, whom he calls a Gallic nation (*op. cit.*, ed. Oxon., 1679, p. 134).

We now reach a time when many of the principal offices in the administration of Gaul began to be filled by the barbarian chiefs. Thus we read how, about the year 355, a Frank named Silvanus, who was in command of the infantry, was sent by the Emperor Constans into Gaul, to repress the disorders there, and to make head against the barbarians who were overrunning it. Silvanus became the victim of a crafty officer named Dynamius, who forged some letters compromising him with the emperor. In vain Malarich, who is called the commander of the Gentiles—that is, of the foreign levies in the imperial service—and who was also a Frank, pleaded for the innocence of his countrymen. Fresh letters, compromising both Silvanus and Malarich, were duly prepared by Dynamius. Malarich called round him the Franks, of whom we are told there were then a very great number in the palace, and in resolute language laid open and proved the falsehoods of the machinations by which their lives were threatened, and was loud in his complaints. Meanwhile a commission of inquiry was appointed to make investigation; but Silvanus, knowing how impressible the emperor was, and fearing that he might be convicted although innocent, began to think of trusting himself to the good faith of the barbarians. From this he was dissuaded by Laniogaisus, who was himself a Frank, and who told him the Franks would readily put him to death or betray him for a bribe. Driven into a corner, he determined to rebel, and having won over the principal officers of the legions, he tore the purple silk from the standards and assumed the title of emperor. When news of this reached Constans, he despatched a force, of which Ammianus says he was one, to suppress the revolt. This had spread very much, but having tampered with some Gallic soldiers in the service of Silvanus, a body of them slew the sentinels and penetrated into the palace: they dragged Silvanus out of a little chapel in which he had taken refuge, and killed him. Silvanus, we are otherwise told, was the son of Bonitus, who was of Frankish extraction. Both names prove that they had virtually adopted

Roman names, and abandoned their Teutonic ones (Ammianus Marcellinus, xv, 5). The murder of Silvanus took place at Agrippina, that is, Cologne; with him were also killed Lutto and Mandio, both of them counts, and both, also, in all probability, Franks (Dom Bouquet, i, 543). These executions were apparently revenged immediately by his countrymen, who captured Cologne. Zosimus tells us that, in conjunction with the Saxons and Alemanni, they devastated forty towns on the Rhine (Dom Bouquet, i, 577).

In the next year, that is, in 356, Julian marched to the Rhine, and having defeated the Alemanni took possession of Cologne; nor, as we are told, did he leave it before the Frank kings began, through fear of him, to abate in their fury, when he made peace with them, and put the city into a very complete state of defence. The words of Ammianus are: "Igitur Agrippinam ingressus, non ante motus est exinde, quam Francorum regibus furore mitescente perterritis, pacem firmaret reipublicae interim profuturam et urbem reciperet munitissimam" (Ammianus Marcellinus, xvi, 3).

In the year 357, Julian, after defeating the Alemanni in a terrible struggle, returned to his winter quarters. As Severus, who commanded the cavalry, was on his way to Rheims, through Cologne and Juliers, he fell in with 600 light armed Franks, who were laying waste those places not defended by garrisons, and who had taken advantage of Julian's absence among the Alemanni. Now that he returned they occupied two fortresses, which had been long abandoned, and defended themselves as long as they could. Julian ordered the forts to be blockaded. The Meuse, we are told, flowed beneath them, and the blockade continued for fifty-four days, through nearly all December and January, the enemy keeping up a brave resistance. The river was frozen, and Julian ordered a number of light boats to move up and down it, so as prevent the enemy from crossing it over the ice. This manœuvre was successful, and the Franks, driven to despair, and exhausted by hunger and watching, sent to offer to surrender. They were accordingly sent on to the emperor, whereupon a great number of Franks, who had gone to assist their compatriots, hearing they were made prisoners, returned home again (*op. cit.*, xvii, 2). Libanius speaks of 1,000 Franks who were sent by Julian to Constans, who distributed gifts among them and enrolled them among his troops, deeming them to be towers among his other soldiers (Dom Bouquet, i, 733). These Franks, against whom Julian fought, were doubtless Ripuarians from the river Maine. We now find him in contact with their brethren on the Lower Rhine. This was in 358. We are told that he marched against the Franks, that is, against

that tribe of them usually called Salii, who, some time before, had ventured with great boldness to fix their habitations on the Roman soil, near Toxandria. But when he had reached Tongres ("cum Tungros venisset") he was met by an embassy from this tribe, who expected still to find him in his winter quarters, offering him peace on condition of his leaving them unattacked and unmolested, as if the ground they had seized were rightfully their own. Julian comprehended the whole affair, and having given the ambassadors an ambiguous reply, and also some presents, sent them back again, leaving them to suppose he would remain in the same place till they returned.

But the moment they had departed he followed them, sending Severus along the bank of the river, and suddenly came upon the whole settlement like a thunderbolt; and availing himself of his victory to make a reasonable exhibition of clemency, as indeed they met him rather with entreaties than with resistance, he received the submission of them and their children (*op. cit.*, Bohns tr., xvii, 8). Julian then attacked the Chamavi, and, as I have remarked, it is interesting to find Ammianus, in this notice, making a clear distinction between the Franks and the Chamavi. In a letter of Julian which is extant, we find him speaking of his having marched against the Salian Franks, and the Chamavi, and that the gods having been propitious he had subdued the Salians and expelled the Chamavi.

In reference to these events, in which the Franks seem to have crossed the Rhine in considerable numbers, Zosimus has a very curious and interesting passage, which has been too little considered. He says, speaking of the year 358 A.D., that the Saxons were deemed the most powerful in bodily and mental vigour of all the barbarians inhabiting those regions, *i.e.*, the neighbourhood of the Rhine. They sent out a portion of their stock, namely, the Kuadi, into the territory occupied by the Romans; but the neighbouring Franks prohibited them crossing for fear the emperor might have just cause for again entering their borders. Having built some ships, they passed by the district subject to the Franks, and reached that subject to the Roman jurisdiction. Their ships at length reached the Batavian island and drove out the Salii, a branch of the Franks who had sought refuge there from their attack. Previous to this the island had been subject to the Romans. When Julian heard of this he attacked the Kuadi. He ordered his people, however not to molest the Salii, since they had not invaded the Roman borders as enemies, but only when compelled by the Kuadi. Julian showed them even greater consideration, for he permitted one section of them, with their king, to cross within the Roman territory. Others sought shelter on the frontier

("ad limites," says the translation before me. Bouquet translates "ad montes," but there are no mountains on the Lower Rhine). They all at their own instance put themselves and their property at his service. Julian now began to take measures for the defence of the frontier. Feeling that the barbarians were not capable of great efforts in war, but only given to predatory attacks, he was fearful that the borders of the empire would suffer accordingly, but was doubtful what policy to adopt to counteract them. Zosimus tells us there was at this time a gigantic barbarian named Khariettus, who had immense vigour. He had left his own people and joined the Romans, and taken up his residence at Trèves, when he noticed that the barbarians were in the habit of attacking the towns beyond the Rhine and plundering them. These attacks began about the same time as Julian's authority. As he could not adopt the plan he would have liked, inasmuch as there was no law permitting him to do so, he adopted another course. Hiding himself in the thick woods, he awaited the attacks of the enemy, and, falling upon them when overcome with sleep, he cut off as many heads as he pleased, with which he returned and showed them to his co-citizens. As this happened frequently it caused considerable dread to the barbarians, who did not know whence the blow came, and who yet saw their numbers daily decreasing. Presently a band of robbers collected round him, which increased in numbers considerably, whereupon Khariettus informed Julian about the whole matter. He, conscious that it was impossible to follow up the forays of the enemy with a regular army, and that the only way of effectually meeting the freebooters was with another set of freebooters, determined to take Khariettus and his band into his service, and having joined a large number of Salians to them, he sent them out at night against the Kuadi. This he supplemented by a series of military posts, which made the escape of the robbers difficult. He did not relax his efforts until the Kuadi were at length so harassed that they submitted with their king to Julian, who by his tactics had secured an immense number of prisoners, including the king's son, who had been captured by Khariettus. Having punished them severely, Julian insisted upon their giving hostages from the noblest among them, including the king's son. Julian gave way about the last, in response to the king's tears. Peace was now made, and we are told that the Salii Kuadi and certain of the inhabitants of Batavia were enlisted in the legions (Dom Bouquet, i, 579–80).

The story is told in a different way, without mention of the Salians or Franks, by Eunapius (*id.*, 567–8). He enables us to correct the Kuadi of Zosimus (who have been apparently confused by the editors with the Kuadi, who were a Sarmatic people)

into Chamavi, for this is the form of the name in Eunapius. This is very interesting, since we see what a sharp contrast there was between the Chamavi, who are called Saxons, by Zosimus, and the Franks whom they actually drove out of their old seats.

In the year 360 Ammianus tells us how Julian, who had meanwhile been saluted as emperor at Paris, crossed the Rhine and entered the district belonging to a Frank tribe called the Attuarii, whom he describes as men of a turbulent character, who were then licentiously plundering the districts of Gaul. He attacked them suddenly and unawares, for they relied greatly on the ruggedness and difficulty of the roads which led into their country, and which no prince within their recollection had ever penetrated. He put many of them to death, and captured many prisoners, and granted the survivors peace (*id.*, xx, 10).

In the year 368 we read that the Franks and Saxons assailed the coasts of the Gauls with terrible energy—burning, ravaging, and making prisoners. To oppose them Valentinian went to Bononia and Rutupiæ, and concerted measures there (Ammianus Marcellinus, xxvii). On this passage the editors of Dom Bouquet remark that Hieronymus, who died in 420, in the "Life of Hilarion," says that Francia was situated between the Saxons and the Alemanni (Dom Bouquet, i, 561, note *c*). In his Chronicle we read, under the year 373: "Saxones cæsi Deusone in regione Francorum" (Dom Bouquet, 611). This fact is also mentioned by Eusebius, whose words are: "Saxones cæsi Diovione, in regione Francorum considerunt qui superfuerunt" (*id.*, ii, 462, note).

The Franks were now settled in considerable numbers west of the Rhine, and we read of the Romans employing them in repelling the attacks of the other invaders. Thus we find Gratian, in 377, appointing Nannenius to command a force which was to meet an invasion of Germans then impending, and associating with him Mellobaudes, who is called "domesticorum comes" (*i.e.*, count [commander] of the domestic guards) and king of the Franks, and is described as a man of great courage and renown (Ammianus Marcellinus, xxxi, 10). They inflicted a severe defeat on the invaders.

Mellobaudes was no doubt the same person who is mentioned as the tribune of the guard in 353 (Ammianus Marcellinus, xiv, 11), and again as the tribune of the heavy-armed soldiers, and the friend of Silvanus and Malarich (*id.*, xv, 5). From this position as an imperial officer he seems to have easily developed into a king of the Franks.

Under the year 374 we read how Macrianus, the king of the Allemanni, having made peace with the Romans, eventually

died in the country of the Franks, which he had invaded, and which he had ravaged in a most destructive manner, till at last he was cut off by the manœuvres of Mellobaudes, the warlike king of that nation, and slain (*id.*, xxx, 3).

Zosimus tells us, under the year 381, that Julian committed some forces to Baudon and Arbogast, who were Franks and great friends to the Romans, free from avarice and from mercenary motives, very prudent in warlike matters, and very pre-eminent in strength (Dom Bouquet, i, 583). In 388, Arbogast was sent by Theodosius to put down Victor, the son of the usurper Maximus, who had adopted the style of Cæsar. He speedily killed him (*id.*).

Our next authority is Sulpitius Alexander, of whom we only know that he is quoted as an authority by Gregory of Tours. He tells us how during the usurpation of Maximus, who revolted against Valentinian II, at the end of the fourth century, and when the fortunes of Maximus were at a low ebb, and he was sheltering at Aquileia, in Italy, whither he had gone against Valentinian, the Franks invaded Gaul.

They were led by three chiefs, named Gennobaud, Marcomir, and Sunnon, and ravaged the country as far as Cologne. When the news reached Trèves, Nannenius and Quintinus, who had been entrusted with the care of his son and of Gaul by Maximus, marched with an army toward Cologne; but the enemy had already re-crossed the Rhine laden with booty. They left a portion of their army behind, which was attacked and dispersed in the Ardennes by the Romans. The latter now deliberated whether they should cross the river into "Francia" (*i.e.*, the district beyond the river). Nannenius prudently refused to do so, but Quintinus and the rest of the army, being of a different opinion, crossed the Rhine near Neutz, and two days later arrived in a district that was well peopled, and where the towns had been abandoned. The Franks, professing to be frightened, had withdrawn into their forests, and raised abattis of trunks to close the ways. The Romans, having burnt their houses, gave themselves up to security. When they again advanced into the forest after their enemies, they were assailed by showers of poisoned arrows, the cavalry were bogged in the morasses, and only a few of them escaped; among the slain was Heraclius, the tribune of the Jovinians (Gregory of Tours, ii, 9). This was apparently in 388. Presently Nannenius was replaced by Kharietton and Syrus, who opposed the Franks in Germania (*i.e.*, probably in Alsace).

The Franks seem to have carried off some plunder on this occasion, and we read how Arbogast, who belonged to their race, incited the Romans to compel them to return the booty

they had carried off, and to punish those who had violated their troth. The Romans seem to have marched against them: their general had an interview with Marcomir, and the other royal officials of the Franks, from whom he took hostages, and then returned to Trèves. Valentinian II was then reigning, but he was virtually a prisoner in his palace, the military affairs of the empire being controlled by the Franks in his service, while the civil affairs were directed by the faction of Arbogast, another Frank, and none of the soldiers could be depended upon to obey the emperor. Arbogast had had a long feud with Sunnon and Marcomir, the Frank chiefs, against whom he now marched. He arrived at Cologne in midwinter, fancying he could easily penetrate into the Frank country at that season, while the forests were free from leaves, and ambuscades were difficult. As I have argued, the Franks had at this time become the masters of the various tribes who lived on the right bank of the Lower Rhine, and we are told that Arbogast crossed the Rhine at the head of his army, and ravaged the land of the Bructeri, who lived nearest to its bank, as well as the village inhabited by the Chamavi, and was only opposed by a small number of Ampsuarii and of Chatti, commanded by Marcomir, who showed themselves on the neighbouring heights. Eventually Valentinian was killed by Arbogast, who set up Eugenius in his place. This was in 392. We are told that he renewed the treaties with the Alemanni and the Franks (Gregory of Tours, ii, 9).

In the year 394, Theodosius having collected a body of Gauls and Franks, Arbogast ("nixus etiam præcipuo cultu idolorum") succumbed at once (Orosius, vii; Dom Bouquet, i, 597). He withdrew to the mountains, and there committed suicide (Zosimus, iv; Dom Bouquet, i, 584).

Our next authority is the poet Claudian, who, in describing how, in 395, the Vandal Stilicho, who was in the service of Honorius, pacified the Gaul, has these lines:—

> "Ante Ducem nostrem flavam sparsere Sycambri
> Cæsariem, pavidoque orantes murmure Franci
> Procubuere solo."
>
> Claudian, ex. lib de quart. Consul. Hon.
> (Dom Bouquet, i, 769).

In other lines, in which he eulogises his favourite hero, he speaks thus:—

> ". . . Rhenumque minacem.
> Cornibus infractis adeo mitescere cogis,
> Ut Salius jam rura colat, flexosque Sycambrus.
> In falcem curvet gladios, geminasque viator
> Cum videat ripas, quæ sit Romana requirat:
> * * * * *

". . . Provincia missos
Expellet citius fasces, quam Francia Reges,
Quos dederis. Acie nec jam pulsare rebelles,
Sed vinclis punire licet. Sub judice nostro
Regia Romanus disquirit crimina carcer.
Marcomeres Sonnoque docent; quorum alter Etruscum
Pertulit exilium; cum se promitteret alter
Exulis ultorem, jacuit mucrone suorum.
Res avidi concire novas, odioque furentes
Pacis, et ingenio scelerumque cupidine fratres."
(Ex lib. de laud., Stil. Dom Bouquet, i, 771.)

From this we see that Marcomir and Sunno, the two Frank kings, were brothers. The former was, about 397, carried off to Honorius, who imprisoned him and afterwards sent him to Etruria, while his brother was killed by his own people.

When, in the year 403, Stilicho marched the legions of Gaul and Britain towards Rome, which was being attacked by Alaric the Goth, the Rhine was left without defence, and various hordes of Vandals, Suevi, Burgundians, and others crossed the river and attacked Gaul. According to Renatus Frigeridus, an otherwise unknown author quoted by Gregory of Tours, the Vandals had a terrible struggle with the Franks, in which their king, Godegisl, was killed, and about 20,000 men perished. The Vandals would have been exterminated if the Alans (as Messrs. Taranne and Guadet read it, and not Alemanni, as most of the manuscripts have it) had not gone to their rescue. Jovinus, the usurper in Gaul, had Franks in his army, so had Constantine, who was proclaimed Emperor in 407, and about the year 412 we are told that the Franks pillaged and burnt the city of Trèves, while shortly after Castinus, the commander of the domestic guards, was put at the head of an army and sent into Gaul against the Franks (Gregory of Tours, ii, 9).

Sozomen, in describing the struggle between Honorius and Constantine, states that the latter sent his commander, Edobich, across the Rhine to get assistance from the Franks and the Alemanni (Sozomen, lib. ix; Dom Bouquet, i, 606).

At this time the Franks were apparently divided into two well-marked sections—those who were free answering in the main to the Ripuarians, who lived east of the Rhine; and those who were in the condition of Læti, or military colonists, who lived west of that river. Marcomir and Sunno, of whom we have written, were doubtless the chief of the Ripuarians; so also probably was Theodomir, the son of Richimir, of whom Gregory of Tours, quoting the "Consular Fasti," says that he was massacred with his mother, Aschila. He says also that at that time Clodion, equally distinguished among his people for his nobility and merit, was king of the Franks. I take this Clodion to have been the chief of the Læti, or Stipendiary Franks.

In the early genealogy of the Frank kings extracted from a codex at Saint Gallen by Pertz (iii, 307), he heads the list; in others he is made the son of the fabulous Pharamund. Gregory says he lived at Dispargum, in the country of the Tongri.

The site of Dispargum has been much debated. It is called Castrum Dispargum by Gregory of Tours; Castellum Disbargum by Aimoin; and Castrum Dispartum by Trithemius. According to Ortelius and Pontanus, it was Duisburg, between Wesel and Dusseldorf, on the Roer, five leagues from Dusseldorf. According to Du Bos, Duysbourg, between Brussels and Louvain, two leagues and a half from Brussels. Eccard identified it with Disborg, near Smalkald, in the principality of Henneberg, in Franconia; and according to Chifflet, Henschenius, Vredius, Boucher, Mantelius and Wendelin, Diest in Brabant. Diest seems never to have been called Dispargum, but was called Diosta in the sixth century, and in the ninth its dependent district was called the "Pagus Diestensis," while the name Dispargum occurs as late as 986 ("Mémoire sur l'Établissement des Franks dans la Belgique," 368). Gregory of Tours expressly says that in going from Dispargum to Cambrai the Franks had to cross the Rhine. This seems to limit the sites to Duisburg near Wesel, Disborg in Franconia, Doesburg near Zutphen, or Desenberg in Westphalia, between the claims of which I don't see my way to deciding.

Gregory of Tours tells us, quoting the "Consular Fasti," that Clodion, having sent people towards Camaracum (*i.e.*, Cambrai) to explore, followed himself, and, having attacked the Romans, seized the towns of Tournai and Cambrai, after living there awhile he extended his conquests to the Somme (*op. cit.*, ii, 9).

Roricon, a very unsafe authority, says he extended his conquests to Amiens, where he reigned (Dom Bouquet iii, 4); and we have no better source than the "Gesta Francorum" for the statement that he reigned for twenty years (Bouquet, ii, 544). The "Gesta Francorum" were compiled in the earlier part of the eighth century. The editors of Bouquet date his attack on Cambrai in 445. Prosper of Tyre, under the year 427, has the entry, "Clodius regnat in Francia" (*id.*, i, 638).

Sidonius Apollinaris, in his panegyric on Majorian, tells us how Cloio invaded the country of Artois, whereupon Majorian and Ætius marched against him, and surprised him at the village of Helena, which some identify with Lens, while celebrating a marriage. His somewhat inflated lines are as follows:—

"Post tempore parvo
Pugnatis pariter, Francus qua Cloio patentes
Atrebatum terras pervaserat. Hic coeuntes
Claudebaut augusta vias, arcuque subactum.
Vicum Helenam, flumenque simul sub tramite longo
Artus suppositis trabibus transmiserat agger.
Illic te posito, pugnabat ponte sub ipso
Majorianus eques. Fors ripæ colle propinquo.
Barbaricus resonabat hymen. Sythicisque choreis
Nubebat flavo similis nova nupta marito.
Hos ergo ut perhibent, stravit; crepitabat ad ictus
Cassis et oppositis hastarum verbera thorax
Arcebat squamis donec conversa fugatus
Hostis terga dedit. Plaustris rutilare videres
Barbarici vaga festa tori, convictaque passim
Fercula, captivasque dapes, cirroque madente
Ferre coronatos redolentia ferta lebetas, etc."
(Dom Bouquet, i, 802.)

The editors of the work just quoted state in a note that this fight has been frequently assigned to the year 428, in which year, according to Prosper of Aquitaine and Cassiodorus, the district near the Rhine held by the Franks was reconquered by Ætius. "Pars Galliarum propinqua Rheno quam Franci possedendam occupaverant Ætii Comitis arma recepta," says Prosper of Aquitaine (Bouquet, i, 630); but this date is at issue with the chronology of Majorian's life, as is that of the entry in Idatius in the year 432: "Superatis per Ætium in certamine Francis et in pace susceptis (*id.*, 617), and they therefore date the event about the year 446.

There is a curious entry in Priscus which refers, probably, to Clodions' reign. He tells us how Attila fought against the Franks, and caused the death of their king, and how a dispute arose about the succession between his sons, of whom the elder sided with Attila, and the younger with Ætius. The latter Priscus himself saw at Rome, and describes him as a young man just growing his beard, and speaks of his golden locks streaming over his shoulders. He tells us he was adopted by Ætius, and was presented with many gifts by him and by the emperor (*id.*, 607–8). The king, who was thus killed by Attila, apparently about 449 or 450, has been considered by some to be Clodion, but the learned Benedictines argue against this, and suggest he was the chief of the Ripuarians, and not of the Salians, and that his son led the contingent of Franks in the Hunnic service, who came from the river Necker, and who are thus apostrophised by Sidonius Apollinaris, in his panegyric on Avitus:—"Udosa quem vix Nicer abluit unda, Prorumpit Francus" (*id.*, 607–8, note *a*).

It is curious to compare the name Clodius, or Clodio, of the Frank king whom we have here described, with the Roman family name Clodius. We do not know when Clodion died.

Gregory of Tours tells us that the King Meroveus, who had for a son Childeric, was of his stock (*op. cit.*, ii, 9). Fredegar, in his "Epitome," makes Meroveus the son of Clodio, and has the following strange notice:—

"Hæc generatio (*i.e.*, that of the Franks) fanaticis usibus culta est. Fertur super litore maris æstatis tempore Chlodeone cum uxore resedente meridie, uxor ad mare lavatum vadens, terretur a bestia Neptuni, qui Minotauro similis eam ad petisset. Cumque in continuo aut a bestia aut a viro fuisset, concepit, ac peperit filium, Meroveum nomine, a quo Reges Francorum postea Merovingii vocantur" (*id.*, ii, 395–6).

In the "Gesta Regnum Francorum" nothing is said about Meroveus having been the son of Clodion, but there is merely a mention of him as his successor (*id.*, ii, 544). Under the year 448 we have, in Prosper of Tyre, the entry, "Meroveus regnat in Francia" (*id.*, i, 640).

It is curious that Gregory of Tours tells us no facts about Meroveus himself, and I am strongly disposed to agree with Mr. Perry in his suspicions, that he has been created to explain the name of the dynasty, namely, that of the Merovingians, or Mervings, who, as we have seen, bore a name of much older date. It is true that Meroveus occurs as a royal name at a later date. Thus we have one so called who was a son of Chilperic I, and another who was the son of Chlothaire II; but in the notices above quoted, with the legendary air that surrounds them, we seem to be on the traces of a mere eponymous creation. We must remember also that in a genealogical table attached to an old MS. of the Salic Laws, and given by Bouquet, which derives the royal stock from Pharamund, we read that the latter bore Cleno and Cludion, that Chludius bore *Chlodebaud*, who bore Chloderic, the father of Chlovis (*op. cit.*, ii, 696). Meroveus is not named at all in this list, and Chlodebaud takes his place.

Reverting to our story, we find that when Attila invaded Gaul, and was encountered by Ætius, the latter had both Goths and Franks in his army. After defeating the Hunnic king, we are told by Gregory of Tours that he persuaded the Frank king, who had been his ally, to withdraw, by persuading him that if he did not return home some one might seize his throne (Gregory of Tours, *op. cit.*, ii. 7).

Jornandes, who describes the same struggle, enumerates the allies of Ætius thus: Franci, Sarmatæ, Armoritiani, Litiani (*i.e.*. Letæ), Burgundiones, Saxones, Riparioli (*i.e.*, Ripuarians), and Ibriones (or Olibriones, who lived east of Lake Constance) (*op. cit.*, ch. 36; Dom Bouquet, ii, 23).

Jornandes further tells us that in this terrible struggle with the Huns, 162,000 were killed on each side, besides 15,000

(some copies say 90,000) Gepidæ and Franks, who killed each other in a struggle the night before the battle—the former fighting for the Huns, and the latter for the Romans.

Sidonius Apollinaris, as we have seen, in his panegyric on Avitus, mentions the Francs from the Necker as aiding Ætius (Dom Bouquet, i, 806).

Gregory of Tours, as we have said, suggests, in a doubtful manner, that Meroveus was the father of Childeric. "De hujus stirpe" (*i.e.*, of Clodion), he says, "quidam Merovechum Regem fuisse adferunt, cujus filius, fuit Childericus" (*op. cit.*, ii, 9). With Childeric we are on firm ground. Gregory tells us he gave himself up to his passions, and dishonoured the daughters of the Franks over whom he reigned. They accordingly drove him out, and he sought refuge in Thuringia (*Thoringiam petiit*), leaving behind him a man whom he could trust (*id.*, xii). Fredegar, in his "Epitome," calls this man Wiomad, and says Childeric had released him when he was being carried off with his mother by the Huns (Dom Bouquet, ii, 396). In order that the two might have a common sign, Wiomad broke a gold coin in two, and told him that when he sent him a message he would send him the other piece, and if it fitted his own he would know that all was right, and that he might return home again. Childeric repaired to the King of Thuringia, Basin, and to his wife Basina. When he had gone, Gregory tells us that the Franks unanimously elected Ægidius, who sustained—in a small portion of Central Gaul, limited by the Oise, the Maine, and the Seine—the continuity and traditions of the Roman empire.

Wiomad now, according to Fredegar, began to intrigue; he persuaded Ægidius to impose heavy taxes upon the people, and when they were still content to be taxed, rather than trodden under by Childeric, he advised him to break the pride of his new subjects by killing a number of them. Wiomad, having himself counselled this course, turned to the Franks, and denounced him, saying it did not suffice him to tax them so heavily, but he must treat their relatives like cattle, and kill them (Dom Bouquet, ii, 396). At length they were ready, and after Ægidius had reigned over them for eight years, Wiomad sent the half of the gold piece, and Childeric once more returned. According to Fredegar, he was met at the castle of Bar (he does not say which—Bar le Duc, Bar sur Aube, or Bar sur Seine) by his *leudes*. He then relates a story in which Childeric is made to have intercourse with the Emperor Maurice, who lived 100 years after his death, and which is fabulous. Gregory tells us that, after his return, Basina, the wife of his late host, went to him and deserted her husband. In answer to his inquiries why she had gone, she gave what Mr. Perry judiciously calls a naïve answer: "Novi

inquit, utilitatem tuam, quod sis valde strenuus: ideoque veni ut habitem tecum: nam noveris, si in transmarinis partibus aliquem cognovissem utiliorem te, expetissem utique cohabitationem ejus. At ille gaudeus, eam in conjugis copulavit, quæ concipiens peperit filium, vocavitque nomen ejus Chlodovechum. Hic fuit magnus, et pugnator egregius" (*id.*, ii, 168). Such, then, was the origin of the famous Chlovis, who became the founder of the empire of the Franks. Fredegar gives a fantastic account—*suo more*—of his conception (*vide* Dom Bouquet, ii, 397).

We now find Childeric and his Franks in alliance with the Romans. He is found at Orleans, which was apparently menaced by the piratical Saxons, who, under Odoacer, had advanced to Angers. On the death of the Count Ægidius, he was succeeded by his son, Syagrius. We then read of Odoacer taking hostages from Angers and other towns, while the Bretons were driven from Bourges by the Goths (*i.e.*, by the Visigoths of Aquitaine) who killed a great number of them near Deols. The Count Paul, with the Romans and the Franks, fought against the Goths, and took much booty from them. At Angers a strange revolution took place. Odoacer, having arrived there, was followed the next day by Childeric, who killed the Count Paul, and took possession of the town (Gregory of Tours, ii, xviii). This was probably after defeating the Saxons. What Childeric's position was at this time it is hard to say, and it has been argued that he was in fact the generalissimo of the forces which were still controlled by the fragment of the Roman Empire that remained. According to Idatius, Ægidius died on the 19th of November, 464, and was succeeded by his son Syagrius.

That Childeric should have killed the Count Paul himself has seemed so inexplicable to some historians, that they have transferred that feat to Odoacer (Cochet, "Le Tombeau de Childeric," 10, note; Capifigue, "Chlovis et les Mérovingiens," 73).

We, however, next hear of Childeric, in alliance with Odoacer, attacking the barbarians who were assailing Italy. According to some these were Alemanni; others make them Alans. This war apparently terminated about 471. Childeric is mentioned in the "Life of St. Géneviève," and mentioned as if he had control of the city of Paris (Dom Bouquet, iii, 370).

The death of Childeric has been most probably fixed, although we have no absolute data, about the year 481. Roricon says he died at Amiens. This is, however, uncertain. What is certain is that he was buried at Tournai, perhaps the capital of his kingdom. "Urbs Tornacensis quæ quondam fuit regalis civitas," says St. Ouen in the seventh century, in his "Life of St. Eloi" (Cochet, *op. cit.*, 11, note 5). There his tomb was discovered

in 1653, and some of its famous contents, so interesting in the history of early art, after curiously romantic adventures, were eventually deposited in the Louvre, where they may be still seen. They have been illustrated with singular learning and perseverance in the Abbé Cochet's work above cited, which has become an archæological classic. Childeric was succeeded by his son Chlovis, whose history has been so profusely illustrated, and is so familiar that we need not do more than epitomise the steps by which an empire was created out of the petty kingdom of Tournai. Gaul was at the time of his accession divided into several fragments. Of the old Roman dominion there remained under Syagrius, according to the researches of M. Biet and Lebœuf, Laon, Auxerre, Troyes, Meaux, Rheims, Beauvais, Senlis, Paris, and perhaps Chartres, Rouen, and Orléans: the capital of the whole being Soissons (Cochet, *op. cit.*, 8, note 3).

Armorica, including the whole coast from the Seine to the Loire, was independent; the Visigoths held Southern Gaul as far north as the Loire, and as far east as the "Pagus Vellavus" (Auvergne). The Burgundians were bounded on the west by the Visigoths, and towards the Roman fragment by the "Pagus Lingonicus"—the Upper Marne (Perry, "The Franks," 70 and 71). The Franks were divided into two sections, of which the Salians were alone, as yet, subject to Chlovis, the Ripuarians obeying an independent line of princes. These Ripuarians, who, as we have argued, previously lived on the Maine, crossed the Rhine as settlers after the Huns had devastated its borders. It was then, says the very old "Life of St. Remigius," upon which Hincmar founded his biography, that they occupied Cologne and Trèves (Dom Bouquet, iii, 374). They made Cologne their capital, whence Eginhardt speaks of it as "Ripuariæ metropolis." Five years after his accession (*i.e.*, in 486), Chlovis, in alliance with his relative Ragnachar, who ruled over the Franks of Cambrai, proceeded to attack Syagrius, who was speedily beaten and took refuge with Alaric, king of the Visigoths, from whom the victor demanded his surrender. Afraid of the anger of the Franks ("for fear," says the orthodox Gregory of Tours, "is habitual to the Goths," who, it will be remembered, were Arians) they surrendered Syagrius, who was shortly after put to death and his dominions were appropriated (Gregory of Tours, i, 94, 95). Among the booty on this occasion was a vase, remarkable for its size and beauty, which Chlovis wished to take to himself, but a rude soldier smote it with his axe, saying that he must take only what fell to him by lot; he was merely "primus inter pares." Chlovis revenged himself a year later at an inspection of the troops, where he professed to be dissatisfied with the condition in which he had

kept his arms, and clove him to the ground. Five years later (*i.e.*, in 491) Chlovis marched against the Thuringians, and conquered them (*id.*, 95, 96).

The Thuringians were the countrymen of his mother, Basina. In another passage Gregory of Tours recalls some incidents of this war, and makes Theodoric, in inciting the Franks against the Thuringians, recall how the latter had first attacked them, and had cruelly ill-treated the hostages they had given; how they had hung their infants on trees, had dragged their maidens asunder, by tying horses to their arms and then incited them to spring forward with pointed needles; how others of them were nailed to the ground with spikes, while carts were driven over them, their remains being left to the dogs and wild birds (Gregory of Tours, iii, 7).

The Burgundian king, Gonderic, had four sons—Gondebaud, Gondegisl, Chilperic, and Gondomar. Chilperic was drowned by Gondebaud. He left two daughters—Chrona, who took the veil, and Chlotilda, whose beauty had reached the ears of Chlovis. He sent to demand her in marriage, a demand which her uncle was constrained to obey. She presently had a son, Ingomar, whom she insisted upon having baptized. He died in the font, whereupon Chlovis bitterly reproached her, and said it would not have been thus if he had been consecrated in the name of his own gods. She continually urged him to become a Christian, but it was only in the fifteenth year of his reign, *i.e.*, in 496, when in a struggle with the Alemanni, and when the Franks were being beaten, that he appealed to the God of Chlotilda to aid him, promising (if successful) to become a Christian. Thereupon the Alemanni, who had lost their king, gave way and agreed to become his subjects (*id.*, 99, 100). This battle was fought at Tolbiach, the modern Zülpich, near Cologne. The dates of this and preceding events in Chlovis's career depend upon Gregory of Tours. They look suspicious and artificial, each event of importance being separated from the next by an interval of five years.

After the battle the queen is said to have summoned St. Remi, who urged his cause with the Frank king. His only objection was on the ground of the opposition of his people, but this was dissipated when he related what they owed to the God of the Christians. The public squares were shaded with dyed cloths, the churches hung with white curtains, and Chlovis, with 3,000 of his people, and his sister Albofleda, who shortly after died, were baptized. Lateehilda, another sister, who was an Arian, was rebaptized. It was on this occasion that Gregory reports the very problematical story of St. Remigius having said, "Bow thy head humbly, Sicamber; adore that which thou hast burnt,

burn that which thou hast adored" (*id.*, 101). According to Hincmar, in his "Life of St. Remigius," many of the Franks now abandoned Chlovis, and joined his relative Ragnachar beyond the Somme ("Acta Sanct.," Oct., i, 94; Perry, "Franks," 80, note).

What he lost in this way Chlovis amply made up in others, for he became the ally of the orthodox clergy everywhere in their struggle with the Arians. Thus, about the year 493, we are told by Procopius, that the Franks made overtures to the Armoricans for an alliance, since they were both Christians. They accordingly made a compact. The next passage in Procopius is singularly curious, and seems to point to Armorica still remaining partly subject to Roman officials. It says that certain Roman soldiers, who were in the stations of the extreme parts of Gaul, since they could not return to Rome (it being in the hands of the Goths), nor did they wish to go over to their Arian enemies, committed themselves, with their standards and the region which they previously guarded as Romans, to the Armoricans and Germans (with Procopius, German = Frank). They retained all their customs, "which their descendants keep to this day" (*sic*): furnishing a regular military contingent and keeping their own laws, and other Roman customs, (Dom Bouquet, ii, 30, 31). This is assuredly very interesting in view of recent discussions about the survival of Roman customs on this side of the Channel. I may add that Gregory of Tours, in his work on the Martyrs, speaks of the Franks, when still pagans, having made an assault upon Nantes, and having been frightened into a retreat by the appearance of a vision (Dom Bouquet, ii, 465).

We now find Chlovis at war with the Burgundians, who then occupied the districts near the Rhone and Saone, and the province of Marseilles. To this war he was incited by Gondegisl, who was at issue with his brother Gondebaud. During the struggle which took place on the river Ouche, Gondegisl deserted with his men. Gondebaud was defeated, and retired to Avignon, and Gondegisl to Vienne. Chlovis does not seem to have pressed his advantage, and accepted the offer made by Gondebaud through his friend Aridius—which he apparently did not keep—to pay tribute. Free from his dangerous enemy, Gondebaud turned upon his brother, forced an entrance into Vienne by a drain, and killed Gondegisl with the Arian bishop (Gregory of Tours, 103–109). Procopius, who describes this war, tells us that the Goths of Theodoric and the Franks had agreed to make a joint campaign. That monarch, who was not sorry to see his neighbours fighting, ordered his men to march slowly, so that they might arrive late. If they heard the Franks were beaten they were to retire; if victorious,

to go on. The Goths took no part, therefore, in the fight; but they shared the spoils, and Burgundy was divided between them and the Franks (Dom Bouquet, ii, 31, 32). This war took place about 500 A.D.

Some of the chroniclers now report a curious story, namely, that on one occasion Chlovis sent an envoy named Paternus to negotiate peace with Alaric, the King of the Visigoths. It was arranged that the two kings, with their followers, should meet, and that Alaric should, after the manner of the ancients, touch the beard of Chlovis, and swear fealty to him. It was agreed that each king should be attended by a few followers, who should go to the meeting unarmed. Paternus returned home, and Chlovis set out for Aquitaine for the trysting-place. He sent Paternus to make inquiries, who found that the Goths, instead of staves, had with them concealed arms. He accordingly accused Alaric of a base fraud, and suggested that they should appeal to Theodoric, the King of the Italian Goths, to settle the penalty. He, wishful to keep the feud between his neighbours alive, suggested that Paternus should ride on horseback into the space before Alaric's palace and hold out his spear, and that the Goths should then pour money upon it till its point was covered (Roricon says the lance was to be thrust into the ground), and this was to be paid over to Chlovis. Alaric refused to carry out this decision. He, however, entertained Paternus at his palace, and showed him his various treasures. According to Fredegar he took up one of the gold pieces, and thrusting it into his pocket, said, "Hos solidos adarrabo ad partem domini mei Chlodovei Regis et Francis." When he returned, Chlovis assembled his notables and made them a warlike speech (Fredegar, Dom Bouquet, ii, 463-4; Roricon, *id.*, iii, 14, 15; Aimoin, *id.*, iii, 41). At this time the Visigoths were masters of the greater part of Spain, and of the country between the Loire and the Rhone, and were governed by Alaric, the son of the famous Euric. We are told that Chlovis professed great distress that so much territory was possessed by Arians—a Pharisaic view endorsed, no doubt, by many orthodox subjects of the Visigoths, and which greatly weakened their cause. He accordingly marched against the latter, and encountered them at Vouglé, near Poictiers. This was in the year 507. We are told the Goths fought with the lance, but the Franks with the pike (*vide*). The Visigoths were defeated, Alaric was killed, and Chlovis, struck on either side by the enemy's weapons, owed his safety to his excellent cuirass and the speed of his horse. Alaric's son Amalaric fled to Spain, where he continued to rule. Chlovis sent his son Theodoric to overrun Auvergne, and we are told he subdued for his father all the district, from the

frontiers of the Goths to those of the Burgundians. Chlovis himself wintered at Bordeaux, and apparently conquered in person Poitou, Saintonge, and the Bordelais (Aimoin, Dom Bouquet, iii, 42; Capifigue, 95). He carried off the treasures of the Visigothic kings from Toulouse, and marched upon Angouleme, which he captured (Gregory of Tours, 114, 115; Aimoin, *loc. cit.*). The Franks, at this time in conjunction with the Burgundians, also attacked Arles, and ruined a monastery there (*ex.* "Vit. S. Cæs. Episc. Aral.," Dom Bouquet, iii, 384). This siege of Arles is also mentioned by Cassiodorus in his letters. It took place in 510 (*id.*, note).

Before they defeated Alaric, the Franks, according to Procopius, had laid siege to Carcasonne. After his defeat they renewed their attack upon that town. Meanwhile the Great Theodoric had sent an army to the rescue of his compatriots, which completely defeated the Franks (Procopius, "De Bell Goth"; Dom Bouquet, ii, 32, 33). Jornandes tells us the Gothic commander was called Hibba, and that 30,000 Franks perished in the struggle (Dom Bouquet, 702). The Goths then conquered the part of Gaul from the Rhone to the sea, but as they could not hold it, Theodoric restored it to the Franks. The rest of Gaul he annexed, and having put prefects there, imposed a tribute on it (Procopius, Dom Bouquet, 33; Isidore of Seville, *id.*, 702). After the Frankish defeat it would seem that Chlovis raised the siege of Carcasonne, and returned to Aquitaine, where he capture Angoulême, a portion of whose walls, like those of Jericho, miraculously fell (Capifigue, 95, 96). He now presented some rich gifts at the church of St. Martin at Tours, where he received from Anastasius the purple tunic, the chlamys, and the diadem (Gregory of Tours, 115), *i.e.*, consular honours.

He was not nominated actually Consul, for his name does not occur in the *Consular Fasti* (*id.*, note). Having distributed largess widely he returned to Paris.

He was now virtually master of all Gaul, and yet he was merely the Imperator of the Frank forces. Among the Franks there were other chiefs, independent of himself, and subservient to him, only apparently, for the purposes of war, or some general enterprise. It was to the subjection of them that he now turned. First he attacked Sigebert, the ruler of the Ripuarian Franks, whose capital was Cologne. Sigebert had taken part in the battle of Tolbiac against the Alemanni, and had been wounded in the knee, whence Gregory of Tours refers to him as Sigebert the lame (*id.*, ii, 37).

Mr. Perry says the kingdom of Sigebert extended along both sides of the Rhine, from Mayence to Cologne to the west, along

the Moselle as far as Trèves, and on the east to the river Fulda and the borders of Thuringia (*op. cit.*, 91).

Sigebert's son, Chloderic, took part in the war against the Visigoths (Gregory of Tours, ii, 37). Chlovis now persuaded the young man that by putting away his father he would secure the throne and his own friendship at the same time. Chloderic seems to have eagerly listened to this counsel, and on one occasion, when his father left Cologne and went for an excursion in the Buchonian forest near Fulda, he assassinated him in his tent. He sent to inform Chlovis of what he had done, and asked him to send some messengers to receive some of the spoil. One of these, apparently instructed by his master, took the opportunity, when the young man was stooping, and had his hand buried in his father's treasure-chest, to cleave in his skull with his francisca.

Chlovis now went to Cologne, and addressing the people there, said: "While I was sailing on the Scheldt, Chloderic, son of my relative, told his father that I wanted to kill him. When Sigebert fled to the Buchonian forest, he himself sent assassins after him, who killed him, and presently he himself was slain." Chlovis urged that he had had nothing to do with the slaughter of his relatives. He went on to urge them to accept him as their sovereign, which they accordingly did, raising him aloft on a shield. The orthodox Bishop improves the occasion in unctuous language, and attributes Chlovis's continuous successes to his close attention to the duties of religion.

Chlovis next attacked Chararic, who, it would seem, was established with his people near Therouanne. During the war with Syagrius, Chlovis had called him to his aid, but he stood aloof from the fight, with the intention of joining the victor. Chlovis now marched against him, captured him and his son by craft, and made them both accept the tonsure. This cutting off of their locks, so dear to the long-haired race, drew forth from the younger prince an exclamation that the branches were cut off from a young tree which would speedily sprout fresh ones; and he ventured to prophecy the speedy death of Chlovis, whereupon he had them both decapitated, and annexed their kingdom (Gregory of Tours, iii, 41). There still remained another Frank king, named Ragnachar, who, according to Mr. Perry, ruled north of the Somme, in Flanders, and Artois, with his capital at Cambrai (*op. cit.*, 94). He was a dissolute person, and given to the basest crimes, which, together with his attachment to a favourite named Farron, disgusted his subjects. Chlovis corrupted his *leudes*, or immediate friends, with presents of bracelets, and baldrics made of gilt copper, which he passed off upon them for gold. He then marched against him, crossed the

Somme, and defeated him. With his brother Richair he was brought before the conqueror, his hands being tied behind him. Chlovis reproached Ragnachar with having disgraced their common blood by allowing himself to be manacled instead of having sought death, and reproached Richair with having helped him, and he clove them both down with his axe. The *leudes* having complained of the base metal he had palmed on them, he replied that they deserved base coin who so basely betrayed their master, and that they might deem themselves fortunate their lives were spared. A third brother, Rignomar, was put to death in the city of Mans. Chlovis, we are now told, appropriated their kingdoms and treasures, and, having killed several other kings whose rivalry he feared, he extended his dominion over all Gaul. Gregory of Tours speaks of these various kings as his relatives, and makes him hypocritically regret that after their death he was like a traveller among strangers, and without any one to succour him in adversity. He adds that this was a ruse to discover if any relative survived whom he might kill (Gregory of Tours, xxii, 42). The term "relative," with Gregory, probably connotes one belonging to the common sacred stock of the Mervings, or Merovingians.

Chlovis died at Paris on the 27th of November, 511, and was buried there, in the basilica of the Apostles, which he had built. It is not our purpose to carry the history of the Franks any further. We have tried to trace it from its dim and shadowy beginnings to a time when Chlovis had subdued all Gaul, and was virtually master of the country, as far as the Elbe in the east, and the Pyrenees in the west. It will be noted that the Saxons nowhere occur at this time as the occupants of nether Saxony. It was the purpose of two previous papers to show that they were not in fact there until a later date, and first invaded nether Saxony, and settled in it in the reign of Chlovis' sons.

To sum up the general results of this paper. We claim to have shown—(1) that the Franks were not the early dwellers in the Rhine valley under a new name, but that they were a new people, who were otherwise and elsewhere known as Varini and Varings, and who, like the Angles and Saxons, with whom they were so closely associated in early times, were a tribe of low Germans from beyond the Elbe; (2) that when they invaded the borders of the empire, and settled within them, they did so as the Saxons did in South Britain—not as conquerors, but as colonists. Our next paper will deal with the Lombards.

ANTHROPOLOGICAL MISCELLANEA.

To the Editor of the "Journal of the Anthropological Institute."

DEAR SIR,—In a recent number of the "Journal of the Anthropological Institute," I wrote a paper in which I endeavoured to criticise the various current theories about the origin of the Franks, and proposed, as I thought, a new one in deducing them from the Varini. Incidentally I referred to the very old and very obvious notion of the apparent connection between the Varini and the Varangians. When I had nearly finished my paper I turned to a memoir by Mr. Hyde Clarke, with the main conclusions of which I found myself in disagreement, but in which I found a passage about the Carini which I thought new and ingenious, and which I incorporated, duly acknowledging my authority, as is my universal practice—a practice so uniform with me that I have been jeered at by some of my friends, who deem me morbid in this matter. Much to my astonishment I find, in the last number of the "Journal," a letter from Mr. Hyde Clarke, most ambiguously phrased, which seems to imply that in writing this paper I took my materials and my theory from himself without acknowledgment, and even had the effrontery to do so from a paper published in this very Review. I certainly feel embarrassed in meeting such a charge. If there be any persons who have seriously been affected by it I must ask them to compare the papers in detail. If they find that Mr. Clarke has anywhere connected the Franks and the Varini, or has otherwise trodden any part of the way in which I have travelled in my induction, other than the common ground of all inquirers since the revival of criticism, he shall have ample amends.

Mr. Clarke's letter compels me to say, in the most emphatic manner, that I repudiate any obligations to him of any kind in this matter, except those I have acknowledged.

I remain,

Yours respectfully,

H. H. HOWORTH.

Derby House, Eccles,
August 8th, 1883.

The election of ERNEST G. RAVENSTEIN, Esq., F.R.G.S., was announced.

MR. W. G. SMITH read a paper "On Palæolithic Implements from Leyton and Walthamstow."

The following paper was then read by the author:—

NOTES *on the* ABORIGINAL RACES *of the* NORTH-WESTERN PROVINCES *of* SOUTH AMERICA.

By R. B. WHITE, Esq., F.G.S.

THIS paper refers to a strip of country about 600 miles in length by from 100 to 250 miles in width, bounded on the west by the Pacific Ocean, and extending from 1° north latitude to the 8th parallel. It is now embraced by the States of Cauca and Antioquia, two of the nine States of the Colombian Union, which was formerly called New Granada.

The country is traversed by the great valleys of the rivers Cauca, Atrato, San Juan, and Patia, and these are enclosed by the Andes Cordillera and its ramifications, whose mountain peaks attain heights of from 15,000 to 18,000 feet above the level of the sea. Elevated tablelands lie in some instances on the flanks of the mountain ranges, at a height of from 5,000 to 8,000 feet above the sea.

On the Pacific Coast, and in the valleys of the Atrato and San Juan rivers, it rains almost without interruption during the whole year, and the temperature ranges from 80° to 90° Fah. on an average.

In the Cauca and Patia valleys the year is divided into two rainy and two dry seasons, and in the lower parts of these valleys the heat is excessive during the dry season.

The seasons on the tablelands are similar, but naturally a low average temperature prevails. In some parts of Antioquia the mean temperature is 50°.

Perhaps there is no country in the world, of equal extent, in which such surprising variations of climate are found.

It may reasonably be supposed that these conditions must have a great influence upon the races inhabiting these regions, and I have therefore mentioned them at the outset.

When the Spaniards first discovered this country, they found the kingdom of the Incas reaching to the confines of what is now the State of Cauca. To the east the most notable people were the Chibchas, under the sway of the Zipa, who resided at Bogotá. Northwards, through the Isthmus of Panamá, nume-

rous barbarous tribes held the country up to the confines of the great nation which existed in Guatemala and Central America.

But the whole of the region under consideration was peopled by races of a low grade of civilisation, so numerous and varied that the Spaniards could make nothing of them. Distinct tribes speaking distinct languages occupied each a few square leagues of country.

Their customs were different. They were constantly at war one with another, and these wars appear to have been made less with the idea of rectifying their frontiers than with that of replenishing their larders, for they were almost all cannibals.

This region would appear to have been the Siluria of that part of South America. It was the refuge of the peoples whose want of organisation, or whose physique and habits, made them unable to cope with the civilised Chibchas and Incas.

But although climatic influences must have assisted in producing changes in the races which were scattered over this country, yet in my mind they would not account for the diversity of language and of religious customs which were so marked. Distinct races must have immigrated and formed settlements, not always perhaps where they would wish, but where they were allowed by previous settlers. Defeated tribes would fall back before the conquering Incas, and in their turn win for themselves a new territory, probably evicting some weaker people, who, reduced in numbers, would seek an asylum elsewhere.

The scattered remnants which are still left of these nations maintain their distinct character. Although they have no government, nor even a clannish organisation, they yet seem instinctively to keep together. The different tribes have as little sympathy one with another as they have with the Spanish settlers.

In the hilly districts of the north-west of the State of Antioquia many rivers take their rise which communicate more or less directly with the Atlantic Ocean. These rivers run through lovely valleys in the upper part of their courses, having temperate climates and fertile soils. Here a great race of Indians existed, who were fairly well governed and federated.

The pottery and goldsmith's work which we discover in their burial-places are very fine. The Spanish explorers rifled tombs containing enormous treasure, and they waged a war of extermination with these tribes because they barred the passage between the Darien Settlements and the interior.

This people was the only one in the region under notice who buried their dead in tumuli. These they constructed on the

hills and ridges, where they may be seen by hundreds. The ordinary size of a tumulus is 40 feet high, but some are very much larger.

The entrance to the tumulus is always to be found towards the rising sun. In construction they differed, apparently, according to the rank of the dead. The poorer class were laid upon a prepared earth floor, made of some special earth, with their arms, tools, and provisions around them, and then the earth mound was raised upon them. Others, probably the rich, were protected by a rough vault, and were laid upon a pavement.

They were buried with every convenience around them for the journey to the other land which they had undertaken. The Spanish conquerors did not take the trouble to find out *where* the Indians thought they were going: they charitably assumed that they were destined for Hades, and one old chronicler, in detailing the completeness of the dead Indian's travelling provision, thinks it was quite superfluous, because, he asks, "Is Hades so very far off?"

The general tradition is that the chiefs had their wives buried alive with them, and certainly skeletons have been found in a sitting posture around a recumbent one, which latter might be the chief and the former his unfortunate wives.

Although the Spaniards rifled many of these tumuli of their contents, and the present inhabitants of the country open a few now and then, yet quite enough remain intact to reward the scientific explorer. The notable graves were always dug out first, but the second class are full of objects of interest, though they may not have the intrinsic value of the gold ornaments of the Indian Dives.

The whole district bears evidence of having been thickly populated, but the Indians built their houses of perishable material, and the sites of their villages and towns are with difficulty recognisable.

Scattered over some 2,500 square miles of country there may be still, perhaps, 2,000 Indians in this part, living subject to the Colombian rule, in their own style.

They are of fair stature, and their features present no special type worth noticing.

They still affect bead belts, and go naked except when they present themselves in the towns. They paint themselves red and blue with anatto and indigo, and whilst ready enough to use a gun, they generally employ their blow-guns with poisoned arrows in the chase. They cultivate maize, and keep horses, cows, and pigs, but they only come to trade in the villages when they require some special article which they cannot otherwise procure.

They are very suspicious, and even when they have been well received at a place, and asked to return, with an offer of a good price for their produce, they will rarely if ever come back until some time has elapsed. They seem to fear that some trap will be laid for them.

They are very dexterous hunters, and are always prowling round in search of game without letting themselves be seen. Many a deer which apparently baffles the white man's dogs, and gets away, falls in reality under the silent arrow of some lurking Indian, who has heard the chase going on, and bags the booty for himself.

At the time of the Spanish conquest these Indians worked many important gold mines in the district, but they have never returned to the pursuit. It is probable that they worked as slaves of their chiefs, and afterwards failed to see the good of working for the Spaniards. The negro, when quite independent, and when living in a state practically as savage as these Indians, will still search for gold, and recognises its use. The Indian seems indifferent to it altogether.

No money will buy what an Indian does not care to part with. If an article is not for sale he will not sell it at any price. He consults his immediate wants, and if they are satisfied he has no idea of gain. But when he comes to trade, then he seems to hold it as a principle that he must try to get as much as he can for his goods, and he does not fail to ask preposterous prices for them.

These Indians retain, so far as one can see, none of their old customs in matters of religion or burial. They conform to the present practices of the country.

The valley of the Atrato, to the west of Antioquia, was inhabited at the time of the Spanish conquest by large and powerful tribes of Indians known collectively as the Chocoes. They had, however, various languages, and must have been divided into different nations. They were of a much lower grade of civilisation than the Indians of the north-west of Antioquia. The river Atrato, and nearly all the streams flowing into it, are navigable for canoes, and thus over an area of 5,000 square miles a great population might exist, possessing the easiest means of communication. Maize and plaintains grow with little or no cultivation, and fish abound in the rivers. Thus we may well conclude that the Chocoes would live on the banks of the rivers and streams, using their canoes for travelling, and being little addicted to journeys by land. We hear of their being a savage and troublesome people in their own country, but they do not seem to have molested their neighbours. The race is of a dark colour, short and squat, and with ugly features. They paint

themselves with anatto and oil, which, they say, preserves them from the bites of insects. Although they purchase cotton stuffs and blankets to make clothes for use on special occasions, they still use for loin cloths a fabric made from the fibrous bark of a tree called *Damajagua*. A piece of the bark, which is very thick, is laid upon a log of soft wood, and thoroughly beaten with a wooden mallet, the face of which is scored with grooves crossing each other diagonally. The beaten bark is then placed in running water, to wash away the softened parts, and the operation is repeated until nothing but the fibre is left. A cloth is thus made which is very strong and durable, and is a non-conductor of heat. Pieces of 5 feet in width and 6 feet long are thus prepared. They serve as mats to sleep upon, and it is said that even when wet they do not injure the sleeper.

The whole of the rest of the State of Antioquia was thickly peopled with Indians at the time of the Spanish conquest. Every valley and every plateau seems to have been inhabited by its particular tribe. They were all cannibals, and made war upon each other constantly. They were utterly exterminated by the Spaniards.

Salt is prepared in these countries by evaporating the water from salt springs, and the Indians had large establishments for this purpose. It would seem that salt was a dear article, for wherever salt springs exist which the Indians worked, there the burial-places are found to be richer in gold ornaments than anywhere else, not excepting even the very auriferous districts where the Indians worked mines.

Traces of roads are found coming in from all directions towards such salt springs, and the sites of large buildings may be distinguished.

A salt spring was discovered about five years ago, near Concordia, which had evidently been buried by an enormous landslip. A paved stone channel was found, through which the salt water had been led to the boiling house. In this stone channel was found the complete skeleton of a mastodon whose tusks measured 5 feet in length. The ivory is in good preservation, and there seems good reason to believe that the animal was killed by the landslip whilst drinking the salt water. I have seen necklaces taken out of Indian graves formed of beads made of sections of the fangs of the molars of mastodons. The nerve duct gave the Indians a ready-made hole by which to thread the beads.

The perfect preservation of the bone is so remarkable that I do not believe that these could have been fossil teeth which the Indians dug up and employed. I am inclined to think that the mastodon was contemporaneous with man in recent times in this

country; at any rate, if its unwritten history is ever worked up, this will be a point well worth looking into.

The Indians of the north of Antioquia worked quartz lodes for gold, and their workings are very remarkable. They only possessed stone implements, and yet with these they pounded and dug out the hard quartz in lodes which we find it necessary to use gunpowder upon at the present day. Their style of working was very peculiar. They never drove adits or level galleries into a lode, but invariably sunk vertical pits of about 3 feet in diameter, until they cut the lode. Some of these shafts are 60 and 80 feet in depth, and in their sides little steps were cut to afford a foothold, and give a means of ascent and descent. When they had met with a lode, they never worked the mineral out in chambers, or galleries, but always continued to sink their narrow shaft straight down upon it. They used no timbers for supporting the roof or walls, and for this reason they made their holes or shafts so narrow as not to be liable to fall in. In some cases these shafts will go down 40 to 60 yards on a lode with 30 or 40 degrees of inclination, and as the shafts are so narrow that a man cannot possibly turn round in them, the Indians must have had the fatigue of backing up these holes with their loads, feet first. Now why they should have chosen this difficult and incommodious way of working is a puzzle. They did not do it through lack of intelligence, for the sagacity which their workings reveal in other ways precludes this idea. I have fancied that some superstition was at the bottom of it, for I have met, at any rate, with one amongst the Pasto Indians which is very curious. They only go to seek for gold in the rivers when they want to purchase some special thing which can only be bought with money. But if they extract more gold than they actually want, they throw the surplus back into the river. Nothing will persuade them to sell or barter it, for they say that if they borrow more than they really need, the river-god will not lend them any more.

In the quartz mines they sank their shafts 4 or 5 yards apart, and did not make them communicate below. If a shaft hit upon a poor place in the lode, they did not drive along it to find a better spot, but took all the trouble to sink another shaft a few yards away. They seemed to have aimed at making their operations as tedious as possible.

In some of the auriferous districts of Antioquia these workings are very extensive, and thousands of men must have been employed upon them. The Indians worked the mines under the Spaniards, but these workings are easily distinguished, and show a certain conformity with ordinary mining practice.

One tribe of Indians who inhabited the valley of Aburrá,

where the city of Medellin now stands, appears to have practised cremation. We find in their sepulchres jars of pottery about 2 feet in height and 10 inches in diameter. Each of these jars contains bone ashes and a skull.

All other Indians in the country buried their dead, and it is remarkable that one tribe alone, living in the centre of the country, should have had so distinct a practice. This tribe must have have had other peculiarities, for Cieza de Leon, in his history of the discovery of these parts, speaks in strong terms of condemnation of those Spaniards who treated the Indians cruelly, although he was horrified by their cannibalism and vices. But, speaking of the Indians of this valley of Aburra, he says: "The detestation we conceived for these Indians was such that we hung them and their women by their hair to the boughs of trees, and left their bodies there, whilst amidst grievous moans their souls went down to hell."

Now it is strange that this tribe, so specially repugnant, should have had such a distinguishing custom as that of cremation, and it is to be regretted that Cieza de Leon has not told us something of them.

As I have said, all the other Indian tribes, with the exception of the tumulus-builders, buried their dead, and with so little difference as to the mode, that I may speak generally of this, as of their implements.

The Indian graves, or "guacas," as they are called, are constructed on the same plan all over the country. A dry, elevated ridge, composed of easily excavated material, was selected as the cemetery. A pit of only a yard or so in diameter was sunk, sometimes vertically, sometimes at an angle, or sometimes it varied from vertical to inclined. It was sunk to depths varying from 15 to 60 feet, and at the bottom a chamber was formed in the earth. Here the dead was deposited, with his arms, tools, cooking utensils, ornaments, and chattels generally, with maize and fermented liquor made of maize.

The chamber and passage were then rammed tightly full of earth, and sometimes it would appear that peculiar earth, other than that excavated on the spot, was used. One not unfrequently detects a peculiar aromatic smell in the earth, and fragments of charcoal are always found mixed with it in more or less quantity.

The "guaca" hunter takes particular note of these signs, for sometimes, strangely enough, a shaft will be found to lead nowhere—in fact, it is a sham grave, and what may have been the Indian's object in making such, no one knows.

The "guaca" hunters profess to know in what districts the graves open to the setting or to the rising sun, and on which

side of the body the treasure is to be found; but "guaca" hunters, though admirable men in their way, have a good many trade secrets.

It may be of interest that I should mention that in Colombia any one has the right by law of excavating Indian graves. If any damage is done to the land the owner is only entitled to a just compensation.

The only difference to be noticed in these graves is in their depth, or in the care with which the sepulchral chamber is arranged, and this evidently depended upon the rank of the person buried. If the old chroniclers are to be believed, the Indians were buried with absolutely *all* their belongings. So that in some instances a rich chief's grave contains quite a fortune. I have known cases of graves containing gold ornaments to the amount of £4,000, £8,000, and £13,000 respectively.

Although metal implements were used by the people under the dominion of the Incas, and by the Central American Indians, yet the tribes who inhabited the States of Cauca and Antioquia used only stone.

I have seen only two articles (an arrow-head and a spear-head) made of chipped silex, but this is explained by the fact that flint is very scarce in Colombia. Still it is strange that the Indians should not have made some use of copper, as it is found native in considerable quantities in many places. They knew how to melt it, and they alloyed it with gold. Yet gold fish-hooks are found in the graves, and are often washed out of the sands of the rivers, but no copper articles are met with.

I do not mean to say that one or two specimens may not be discovered every now and then, but they were probably articles brought from other regions. In the same way a polished mirror of pyrites has been found here and there, but such articles were probably brought from Peru.

But *the* material which the Indians used for their tools was stone. The volcanic rocks of the country furnished stones of suitable hardness, and the mountain torrents provided the pebbles already worn down into shapes which diminished the labour of fashioning them into implements.

Hatchets, adzes, chisels, hammers, and such-like implements of all sizes are found, and as a rule they are beautifully fashioned and ground.

I have found rough tools for digging and picking in the mines, which were more or less natural fragments of rock or pebbles sharpened at one end. But such examples are rare.

The great hardness of some of the rocks of which the Indians made these tools would render the manufacture a very tedious matter, if only ordinary means were employed.

But I have little doubt that massive corundum, which is found in the country, was very generally used.

The Indians in the Murri valley, on the Abrato, still bring stones of corundum to sell to the farmers for sharpening bill-hooks, &c., and so highly are these stones esteemed that as much as twenty shillings or twenty-five shillings is given for a stone having a smooth face of 3 or 4 inches square.

No doubt the Indians had their famed stone cutlers, as we have our Rogers and our Mappins, and these tools must have been one of their principal articles of commerce. Tribes living in districts where nothing but schistose rocks existed would naturally have to purchase their greenstone and basalt implements from other tribes, and these again would trade in the corundum stones for grinding down the tools. Some of these tools are very nicely shaped. I have seen a collection taken from a goldsmith's grave —chisels, polishing tools, &c.—with the streaks of gold still adhering to them, and they were beautifully made.

The class of pottery found in the Indian graves varies very little. Near Manizales, in the State of Antioquia, there appears to have been a tribe more advanced than the rest, and some of their pottery is very good. Jars, pans, dishes, and pots were generally made in imitation, more or less strict, of the human form, or of frogs, lizards, fruit, &c. Some are rougher than others, but all have the same character. Some of the ware is roughly glazed, and globules of glass have been found in tombs.

Sir Joseph D. Hooker has a ring of gold in the shape of a lizard, with green enamel on the body, which was found in a tomb in the north-east of Antioquia.

It may well be supposed that the goldsmiths and potters would by chance produce glass and enamels from time to time in their operations, and would try to turn their discoveries to account, but would not be able to manufacture any quantity.

The Manizales pottery already mentioned is generally painted in black, red, and white. Musical instruments, something like the ocarina, made of pottery, occur; and also whistles, but they are only found in this district. This may have been a musical people, for Cieza de Leon speaks of their graves being surrounded with fences of bamboos, in which holes were cut in such manner that when the wind blew they emitted a lugubrious sound. Evidently these Indians were Eolian organists, besides being accomplished cannibals.

The pottery found in the State of Cauca does not differ from that which is found in Antioquia. Whether finely or roughly shaped it is all of excellent material, and its preparation must have cost a great deal of time and labour.

Of the tribes inhabiting the State of Cauca, we have but little record. The splendid valley through which the river runs was peopled by races living in the indolence which a tropical climate and a fertile soil induce. They were a prey to the attacks of the hardier and barbarous tribes who lived in the mountains on either hand,—tribes who gave an infinite amount of trouble to the Spanish conquerors, long after they had subdued and overrun the valleys. The only tribe which seems to have had a claim to be called a nation was that which occupied the temperate region round Popayan. Their graves are rich in pottery and gold ornaments very finely made, and I know of an instance in which a statue carved in basalt, representing an Indian, was found in a grave which was evidently that of a Cacique, or Chief. The few remains of these Indians now to be found between Popayan and the frontier of the Ecuador, are simply degenerate Indians. Nothing can be deduced from their type or habits. Those who live in the cold and sterile regions of the Andes are stunted and disproportioned, and as they are all more or less civilised—that is to say, brought under civilised rule—their habits do not represent those of their ancestors. If anything is to be learned respecting these peoples it will be from their graves, for the present descendants of the aborigines are entirely degenerate.

In the valley of the San Juan river there are two Indian tribes called Noánama and Tadó. They are but few in number, and although apparently they have not mixed with the Spaniards or negroes, yet I do not think they represent fairly their original type. Being so few they must intermarry very closely, and hence they degenerate.

The two tribes live close together, and yet speak different languages, of which I append a very scanty vocabulary. The want of a plural and the very imperfect way of counting show how low in the scale of civilisation these Indians are. They are not so ugly as those who inhabit the estuaries and rivers on the coast between Buenaventura and Tumaco. These latter trade a great deal with the ports on the sea coast, and collect caoutchouc and ivory nuts, but they are a very dirty and barbarous people in spite of this. In their intercourse with their women they behave more like animals (or perhaps worse) than human beings.

As I have said before, the few Indians round Popayan and Pasto are too much altered in character and habits to be worth notice. To find Indian tribes *au naturel* it is necessary to cross the Andes and descend into the valleys of the head waters of the Amazon. But in the district of which I am treating there are none.

I have, however, omitted to mention a small remnant allied

to the Tadó Indians, who live in the mountains to the east of Novita. But they, too, are semi-civilised, and, in fact, must have been as long under Spanish influences as any, for the town of Auserina is one of the oldest in Colombia.

Throughout the whole of this great country I know of no vestiges of buildings nor of any monuments left by the millions who once lived here. I say millions, for it may be safely reckoned that the population of the Cauca and Antioquia was not less than 2,000,000, and was more likely 3,000,000. We hear of 10,000 fighting men going out with the Spaniards from a little district like Pácora to make war upon their neighbours. Thousands upon thousands were *used up*, as the Spaniards said, by Belalcazar, in his march from Pasto to Popayan. And this want of anything which could hand down their memory to posterity is significantly characteristic of these races, and points to the conclusions respecting their derivation which I mentioned at the commencement of this paper. Near Titiribe, in the State of Antioquia, there is a group of large stones having circles—some single, and some concentric—some with a dot in the centre, and some without—sculptured upon them. But it is not possible to connect these with the tribes of whom we have any historical record. It seems more likely that they were carved by another race, as I think that similar emblems are found in other parts of America.

In the same way I should conjecture that a few pieces of pottery, and one gold ornament of which I have knowledge, which were stamped with some characters looking like writing, may have been stray objects obtained by these Indians from other people. There is no picture writing, even upon their pottery, nor do their ornaments show anything of the kind.

In the valley of the river La Plata, a tributary of the Magdalena, there are some grand colossal stone statues, with symbolical emblems, and of these we shall no doubt some day have a description from the pen of the distinguished traveller, Dr. Alfons Stübel. But these do not belong to the district of which I am speaking, and I only mention them to leave them on record.

The Indians would take advantage of local products, and round Popayan a considerable quantity of knives, &c., made of obsidian, are found. Dr. Stübel and myself traced the obsidian, and persuaded ourselves that it had been ejected by the Puracé volcano. At first sight it looked as if these Indians had obtained such implements from Guatemala and Central America, where they are common, but it seemed clear that they were made on the spot.

Although the Indians had an extensive knowledge of the uses

of medicinal plants, and possess even now secrets which we may envy them, yet they were and are very helpless when attacked by diseases unfamiliar to them. They fall back in such cases upon charms, and so forth. Thus the importation of small-pox by the Spaniards, and the spread of certain diseases after the conquest, were fatal circumstances for the Indian population. They were carried off by these diseases in thousands, and even now they will make no effort to guard against small-pox.

Of their arrow-poisons so much has been written that I will not speak of them more than to mention that whilst the Indians of the interior use a vegetable poison, principally composed of an extract of a plant of the strychnos family, those of the Pacific coast employ an animal poison. It is prepared from the secretion which exudes from the skin of a small frog. My impression is that it is not *per se* poisonous as it leaves the frog, but that in the process of manufacture a certain amount of decomposition is brought about, and this converts it into a violent blood poison.

Historians say that when a tribe was preparing poison in time of war, its efficacy was tried upon the old women of the tribe. I understand that a strong peace party flourished amongst the old women.

One of the most remarkable poisons I have ever seen is that with which some of the Indians in the State of Antioquia used to poison the salt springs, and so deprive the Spanish invaders of this necessary. They appear to have covered the salt spring with twigs and boughs of a tree now know as "Doncel," which is not the "Manzanillo," the better known upas-tree of South America. Then they covered the spring up with a dam of earth and clay, which was generally kept in its place by palisades and wattle-work. Of course the water of the spring would percolate through these coverings, and it became excessively poisonous. Now the remarkable thing is, that after a lapse of three hundred years this vegetable matter still retains its venomous properties, so much so that it is a work of difficulty to free a spring from them when once the surrounding soil has become saturated with the poison.

Such springs are carefully fenced round, but sometimes animals manage to get at the water, and I have seen three horses killed in one night from drinking at one of these poisoned springs.

The Indians of the central and southern part of the Cauca were, and still are, much addicted to chewing "Coca," but the custom does not seem to have prevailed amongst the natives of the coast or of Antioquia.

The gold ornaments found in the tombs show that the Indians

were acquainted with many ways of working gold. They melted it and cast it well, and I have seen a figure representing a Spaniard in full armour, with visor down, through the bars of which the moustached and bearded face could be seen. The mould for such a casting would be no easy thing to make.

Many ornaments are made of beaten or drawn gold. Some are partly cast and partly hammered work, and these are soldered together with gold solder.

There is a popular idea amongst the Colombians that the Indians possessed some secret for softening gold and rendering it plastic, and certainly finger-marks are to be seen upon some of the gold work. But there is no doubt that such marks are really the copies of the impressions of fingers in the clay mould in which the object was cast.

In Popayan I saw, in 1867, a winged human-headed figure about 6 inches in height, made of copper, thickly gilt. I could not determine how the gilding was done, and I have never been able to obtain any proof that the Indians were acquainted with the use of mercury for gilding.

Rich mines of quicksilver and of silver existed in the country, and some few ornaments of the latter metal are found in the Indian graves, but no extensive use was made of the metal. The Indians must have pointed out the silver mines to the Spaniards, for many rich mines were extensively worked a short time after the conquest. It is not likely that the Spaniards would have discovered these mines by themselves.

I very much regret not being able to present a more practical paper. I once obtained in the La Plata Valley a fine Indian skull, one with a huge, artificially-flattened forehead.

I packed it carefully in a bag with moss, and hired a man to carry it about twenty miles, as I could not put it in my luggage without crushing it. That man did what we often do in an evil hour: he took a short cut by a footpath, and in one place the cut was too short, for he fell down a precipice and smashed the skull to atoms, which he threw away.

A few hints respecting what may be done in the country, and the best places to visit, may be useful. A trip to Colombia costs no great sum of money, and may be made with comparative ease and comfort.

Generally speaking, Indian remains may be found everywhere, but the Frontino and Dabeiba districts, where the tumulus-builders lived, would be found of great interest, and unopened graves would be met with.

To the east-north-east of the State of Antioquio, near Yolombo, there is a district which I believe to be virgin. A great Indian road ran through it, and I have seen abundant indications of

great burial-places, and of villages along it. The road probably connected the country of the Chibchas with the Darien district, and in this part it lay out of the route of the Spanish explorers. By the time the country was settled, the forest had asserted its old dominion in the less frequented parts, and hence I think that the Spaniards did not rifle the graves in the district I am speaking of.

It would be quite possible even yet to obtain vocabularies of as many as ten Indian tribes, and they would be the more interesting inasmuch as these races are disappearing so fast. It is no easy task to draw out an Indian. If he is too civilised, too much used to speaking Spanish, he will mislead by not giving the true Indian expressions. If, on the other hand, he is used to speak only his own language, and knows little Spanish, he will not answer rightly the questions put to him. After getting a lot of answers jotted down, one finds that the Indian has been repeating the questions put to him, or when it was wished to have an interrogation translated, he has answered it.

It is by no means improbable that these peoples preserve traditions of their ancestors, but it is difficult to acquire sufficient familiarity with them and with their language to find out much in this direction. Their reticence, however, is natural, and does not depend on any special aversion which they have to telling what they may know. They do not respect the bones of their ancestors, and willingly help to search the old cemeteries.

The Titiribi district, where the stones, with circles, &c., carved on them, exist, would be found interesting. On many of the hill-sides where the forest has been cleared away, one may see, when the sun is going down and the shadows are distinct, the sites of hundreds of Indian dwellings, marked by a little terrace to each one. There were rich gold mines and large salt springs in the neighbourhood, and I think that an important tribe must have lived here.

The Indians who practise cremation lived, as I have mentioned, in the valley of Aburra, now the valley of Medellin, and, as they were poor, their graves have been left undisturbed. Most interesting researches might be made here at a very small cost.

It may interest the Institute to know that Dr. Manuel Uribe Arango, Dr. Andres Posada Arango, and Senor Leocadio M. Arango, who all reside in Medellin, have taken considerable interest in the study of the Indian tribes, and possess a great deal of information respecting them.

APPENDIX.

Vocabulary of Words used by the Noánama and Tadó Indians.

Compiled by R. B. WHITE, Esq.

	Noánama Indians.[1]	Tadó Indians.[1]
Water	Du	Panéa.
Fire	Igdn	Tibúa.
Wind	Foo	Nawiá.
Sun	Edaú	Pesia.
Moon	Edau	Jedego.
Star	Idaga.	—
Day	Edeu	Astaura.
Night (it is)	Kiwadin	Tinsa.
Man	Emokoyda	Oomoojina.
Woman	Uida	Ooena.
Father	Fade	Tate.
Mother	Ade	Naunē.
Brother	Infu	Ua.
Sister	Infui	Umpima.
Son..	Chaida	Uwar.
Daughter	Chaida uida[2]	Uwar ooena[2],
My wife (woman)	Mu uida	Mu ooena.
Youth		Choudra.
Hair	Pumbú	Púra.
Head	Púdu	Parú.
Nose	Keun	Kung.
Eye	Daŭ	Taŭ.
Eyes	Daudú	Tau umé.
Tooth	Hierra	Kidá.
Molar		Kidamona.
Tongue	Meujina	Kinóme.
Ear	Cachi	Kŭrú.
Ears	Cachi nú	Kuru umé.
Mouth	I	Itaí.
Breast		Troá.
Throat		Ostaú.
Hand	Hua	Huá,
Hands	Hua nu	Hua umé.
Arm	Piu	Hua folo.
Arms	Piu nú	Hua folo umé,
Leg..	Dada	Jinú.
Foot	Bopidi	Jinugá.
Finger	Huachaje..	Huairuma (?).
Nail		Bisi.
Egg	Neman	—
Leaf	Hede (hard *d*).	—
Belly		Bí,
Snake	Nemocóni	Tama (tama chi = little snake).
Big snake		Tamaguaibŭa.

[1] The Indian words are written according to the Spanish pronunciation.

[2] Woman.

	Noánama Indians.[1]	Tadó Indians.[1]
Pot	Dúpi	Kurú.
Hill	Dura	Ijá.
Tree	Paá	Pajurú.
Flower	Nefu	Tatemú.
Fruit	Neta	—
Flowers	Nefu-chojara	—
Fruits	Neta-chojara	—
Maize	Pedeu	Pechajé.
Plantain	Tachi	Namco-pana (plural?).
Ripe plantain	Chivara	Páta.
Cassava	Yuja	Boquierra.
Serpent	Neucoconi	Tama.
Caocho (indiarubber)	..	Pondú.
Jaguar	Imamá	Cuma.
Frog	Echumia	Basí.
Fish	Surma	Kiwú.
Barbudo (bearded fish)	Beta.	—
Vulture	Acosa	Ajosó.
Gourd	..	Saurig.
Cock	Atjārrha	Eter.
Hen	Atjarrhui	Eterée.
Dog	Usá	Sáaqui.
Dogs	Usa chojara (many)	Nemsaquapani.
Parrot	Bathuba	Cāi.
Parrots	Bathuba chojara (many)	Nemcaipana.
Road	Kiudaū (*d* = *th*).	—
Canoe	Japa	Ampa.
Bird	Catarmica	Curfirna.
Birds	Catarmica chojara	—
Forest	Cirna.	—
Sun-god	..	Peesea.
Gold	Pinŭ	Né.
Silver	Patjoua	Parata.
Soul	Acāra	Necū.
Sleep	Nebdafuga	Tajujea.
Shadow	Cucumami	Tiensi.
Death	Towadin (*t* = *th*)	Piurrá.
God	Aya	Acuné.
Fever	Quichidun	Kiiruia.
Medicine	Bení	Neāna.
Doctor	Ben juna	Nearetaduasé.
Policeman	Acurmum	—
Centipede	Huitmia	—
House	Di	Teé.
Small house	..	Tee chagé.
Big house	..	Teeruma.
Tomb	Bipamuam	—
Ascent	Maraga	—
Descent	Badga	—
Palm	Choorra	—
„ (*milperos*)	Socarrho	—
Good	Ojafam	Pia.
Bad	Jonim	Andunumba.
Hat	Pia	—

[1] The Indian words are written according to the Spanish pronunciation.

	Noánama Indians.[1]	Tadó Indians.[1]
Good water	Dujafam	Panea pia.
Dirty water	Dusjanathun	Panea pachirù.
New	Chiiwii.	
Old	Chijuira	Chinũa.
Bad	Jinú	Cachirubri.
Big	Limpurna	Guaibua.
Little	Banachirimi	Mã ãri.
I am	Mũ.	—
Thou	Bũ.	—
My brother is bigger than yours	Enfuhinpumithim	Uampuma-uai ba bũa.
My house is the biggest		Mutee di i them di puma. The dui thi uim.
I go to the house		Mutee dia wei. Mea wei cuma tea.
It is hot		Nempechega.
The water is cold		Panea cunasa.
The water is hot		Panea nuasii.
Knife		Tuthuí.
White		Cafuná.
Black		Ncorro.
Red		Purea.
Ugly nigger		Neorromeatoma. Wenameatoma.
Come here		Usigaga (*g* soft).
Is there water?		Panea pará?
There is none		We hé.
Who knows?		Se wai tá?
Don't know		Ma jui ta nine.
Lie		Chisewá.
I eat		Munejuiduai.
Thou eatest		Muche binejui.
He eats		Echetua banejui.
We eat		Nejudéinoude.
Take, carry		Ethaalhi.
It is going to rain		Cuejchii.
I thirst		Ubichigá.
I hunger		Hásogá.
Adieu		Café.
Thanks		Euchidú.
Take care (look out)		Owá.
Plural (many)	Chojara	Nem..... pani.

Numbers.

1	Aba	Aba.
2	Nu	Umé.
3	Tanjupa	Kimaris.
4	Jayupa	Guasuma.
5	Juambo	Kisona.

[1] The Indian words are written according to the Spanish pronunciation.

Discussion.

Mr. Hyde Clarke observed that many points of interest were to be noticed in this paper. Among these was the reference to the water-gods. With reference to the ancient Chibcha kingdom it was to be noticed that there were lake legends resembling those of Lake Fucino, in Italy, and the lakes in West Africa. The Indians believe that voices are heard from the lakes. In ancient times the chief cacique once a year, attended by the caciques, pushed off on a raft to the centre of the lake, and made offerings of gold images. Hence it had been proposed to drain one of the lakes which was supposed to contain these accumulated gold treasures. The languages in the vocabularies were deserving of attention. At the same time he did not look on the number of languages and tribes in Colombia as exceptional, or as having the significance attributed to them. The normal condition was, as is seen in West Africa, an intermixture of differing languages and tribes. The reasons for these conditions cannot be those assigned by philologists and anthropologists, but require careful observation and discussion. The vocabularies, like all those from America, are not indigenous as assumed, but are fully comparable with those of the Old World.

Mr. Hilton Price inquired whether the tumuli or barrows on the hill-tops were circular or oval, or if corresponding at all to the British or Saxon tumuli so familiar to us in England.

Dr. Leitner, in offering some remarks of an ethnographical and linguistic character, arising out of the paper that had just been read, showed (1st) how the difficulty to which the lecturer had referred, of eliciting linguistic information from savages or semi-savages might be overcome by the adoption of a method which combined the observation of the questioner's immediate surroundings with a scientific purpose. Of this method Dr. Leitner gave some illustrations, instancing at the same time some amusing failures that had occurred in attempts to obtain equivalents for abstract terms or by the careless use of gestures. (2nd) As regards the counting up to five or by fives, this was the natural method, as the fingers of one and then of both hands were the first obvious means of counting. A "classical" example in point were the forms of the Latin numerals I to X. V was the figure of the outstretched thumb and hand; X the crossed thumbs of both hands stretched out; IV and IX showing that *one* was taken *off* the V and X respectively, and so forth. Both gestures and terms for numbers above ten, with races in various parts of the world, were indicative of multitude or incalculability, as there were no more fingers to use than ten. These gestures and terms of course varied according to the habits of the people which employed them, and these habits were affected by climatic, historical, and other associations. Of this the Arabic عشر was a case in point. In Central Asia, also, the wandering Magaddo, whom he had described in a "Selection from the Records of the Panjab Government," counted only up to five, and if they wanted to say six, it was five and one, and so on up to

ten, for which a term had been coined. Still lower in the scale of humanity were the races that could not count beyond two, and whose observation had been limited to the self as number one, and to everything else outside the self as number two, without any further subdivision. (3rd) As regards the degeneracy of tribes when they came in contact with a higher or a different form of civilisation than their own, this fact did not only apply to the savage Red Indians, but also to the cultured natives of India, whose indigenous civilisation, on which rested their moral, intellectual, and political life, was disappearing in consequence of the disintegrating processes of Anglicism.

The AUTHOR said, in reply to remarks which had made in the course of the discussion, that it would give him great pleasure to collect and send to the Institute such skulls and other relics of the aborigines as he might be able to obtain. He thought that many eminent Colombians would be ready to correspond with the Institute upon the subject of the paper, and he believed that Dr. Andres Posada Arango was a Member of the Anthropological Society of Paris. The belief in river and water-gods, to which Mr. Hyde Clarke had referred, was known to him, and existed outside the limits of the district to which the paper had reference. The Chibcha kingdom, where the Zipa was bathed in a lake after being powdered with gold dust, lay to the east of the Central Cordillera. The mine-workings certainly were of great interest, and he (Mr. White) had brought over from Colombia quite a representative set of stone implements, some rude and some highly finished, which the Indians used in the mines. These specimens were in the Christy collection. The mounds made by the Indians of the Dabeiba and Frontino district were circular, and were not like our barrows. In forming the vocabulary of Indian languages Mr. White made use of a system of interrogation given to him by Professor Bastian, of Berlin, very similar to that recommended by Dr. Leitner, but in spite of this there was always a great deal of difficulty in obtaining correct answers.

The following paper was then read by the author:—

On the RELATIVE LENGTH *of the* FIRST THREE TOES *of the* HUMAN FOOT.

By J. PARK HARRISON, M.A.

IN a paper which I communicated to the Anthropological Department of the British Association at Southampton last year, I mentioned that a careful examination of the unrestored feet of Greek and Roman statues in various museums and galleries had led to the conviction that it was from Italy, and not Greece,

that the long second toe affected by many English artists had been imported into this country.

As a fact, very few feet of statues executed in Greece itself exhibit the peculiarity, whilst in Italy, at the earliest period of Etruscan art, the foot is, as a rule, so represented. The suspicion consequently at once arose that a long second toe might prove to be racial, and so account for the proportions which the feature attained in the works of Raphael,[1] and other great Italian masters, natives, possibly, of the districts in which the peculiar form of foot was most prevalent. Supposing a long toe to be racial, it would have appeared perfectly normal in their eyes, and inseparable from the forms adopted as their models.

That a long second toe is racial in Italy, though it may not characterise the Italians generally, has during the last year been more or less established by some observations made by a competent observer, at my request, in Tuscany, where both sculptors and painters represent the second toe as excessively long. Both at Florence, and the district between that city and Aosta, the peculiarity is said to be conspicuous in the barefooted inhabitants; and I am informed that it occurs in the feet of some of the Italian models employed at the Royal Academy of Arts, and in artists' private studios.

In order to ascertain whether the descendants of any of the races that form the population of the British Isles exhibited the peculiarity, an examination was made at Glasgow, in 1876, of the feet of a large number of Scotch and Irish children, principally boys, between nine and thirteen years of age, who were then running about the streets of the city unshod. The result showed that the great toe was in all cases the longest; and the second never shorter than the third. The feet of several hundred children in Perthshire were also examined a few years later by Professor Flower, and not a single instance was met with of a short great toe.[2] Similar results were obtained from observations made by myself at different times of children's feet in Dublin and the Irish quarters in London.

As opportunity offered, measurements were also procured of the feet of sailors, and other adult males in various country districts in the United Kingdom, and with few exceptions, and those almost exclusively in England, the great toe proved to be the longest. In no instance was the third or middle toe found to be longer than the second.[3]

[1] See, for example, the sketches of feet in the Raphael Room at the British Museum; and compare them with the feet of the Choiseul Apollo, and the untouched cast of the only perfect foot of the Venus of Milos.

[2] "Fashion in Deformity," p. 6 (note).

[3] The details of the measurements referred to in the text were unfortunately lost in a railway train.

Having heard that Sir James Paget had noticed, in the course of his extensive practice, that a long second toe was not uncommon, on my applying for information on the subject he obligingly undertook to make special observations for a month, and at the termination of that period furnished me with measurements of the feet of fifty persons, twenty-seven male and twenty-three female.[1] In the case of the males, twenty-four out of the twenty-seven had the first or great toe longer than (*i.e.*, projecting beyond) the second; and in one case it was shorter than the second in the right foot, whilst in the left the first and second toes were of equal projection. In the remainder the difference was much the same in both feet.

In five instances the excess in the projection of the first or great toe beyond the second was about $\frac{1}{4}$ inch; and in one instance, a subject from Yorkshire, the excess was $\frac{1}{2}$ inch—in proportion, apparently, to the stature, viz., 6 feet 2 inches. The other five subjects were described as well formed, and two of them as tall. The minimum projection of the great toe was $\frac{1}{10}$ inch, and it occurred in the case of two children and three adults, two of whom were tall. In the foot of a Jew the first or great toe was $\frac{1}{8}$ inch longer than the second.

In the three instances in which the great toes were shorter than the second toes, one subject, aged nineteen, is described as tall, thin, and weakly; one, twenty-one years old, as well formed and athletic; and one, forty-six years old, as short and stout. In the first and last cases the deficiency was $\frac{1}{10}$ inch, and in the second $\frac{1}{8}$ inch.

There were six instances in which the second toe exceeded in length the third toe by $\frac{1}{4}$ inch; in two instances the difference was $\frac{1}{12}$ inch; and in one instance the second and third toes were of equal length.

No instance occurred of a third toe that was longer than the second.

In the case of the female feet, in ten out of twenty-three subjects the first or great toe was longest, and in ten females it was shorter than the second toe. In the remaining three instances the first and second toes were of equal length. On tabulating the observations, however, according to age (see Tables I and II), by far the greater number of longer second toes were found to belong to women above thirty years of age. The maximum excess in the second toe was $\frac{1}{3}$ inch, in a subject aged forty-five, described as tall and well formed. In two instances the second toe exceeded the first in length by $\frac{1}{4}$ inch;

[1] They were eye-measurements, but Sir J. Paget informs me they may be relied on as correctly estimated.

both subjects, aged eighteen and fifty-one respectively, were well formed, and one of them tall. In five subjects the excess in length of the second toe over the first was $\frac{1}{8}$ inch.

The maximum excess in length of the great toe was $\frac{1}{3}$ inch, and it occurred in the case of two subjects, both of whom are described as tall and well formed. The minimum excess was $\frac{1}{8}$ inch, and it occurred in three instances; two of the subjects were tall and well formed.

There were two instances in which the second toe exceeded the third toe in length by $\frac{1}{4}$ inch, and one instance in which the excess was $\frac{1}{3}$ inch. The subjects were tall. The minimum excess in projection of the second toe over the third in adults was $\frac{1}{10}$ inch, and it occurred in three cases.

Two of the subjects with longer great toes were of Greek origin.

TABLE I.

Male Feet.

Age.	Great toe longest.	Great toe shorter than second.	Second toe longer than third.	Observations.
Years.	inch.	inch.	inch.	
2	$\frac{1}{10}$	..	$\frac{1}{10}$	Well formed.
3	$\frac{1}{8}$	..	$\frac{1}{8}$	Slight; ricketty.
9	$\frac{1}{10}$	..	$\frac{1}{10}$	Small and feeble.
12	$\frac{1}{4}$	..	$\frac{1}{8}$	From Yorkshire; good foot.
14	$\frac{1}{8}$	..	$\frac{1}{4}$	Rather flat and long feet.
14	$\frac{1}{8}$	..	$\frac{1}{10}$	Well formed.
19	..	$\frac{1}{8}$	$\frac{1}{8}$	Tall; thin; weakly.
21	..	$\frac{1}{8}$	$\frac{1}{8}$	Well formed; athletic.
25	$\frac{1}{8}$	..	$\frac{1}{4}$	Tall; thin.
26	$\frac{1}{8}$	..	$\frac{1}{4}$	6 ft. 2 in.; strong; from Yorkshire.
28	$\frac{1}{8}$	..	$\frac{1}{4}$	Tall; well formed.
30	$\frac{1}{8}$	..	$\frac{1}{4}$	Well made.
40	$\frac{1}{8}$	..	$\frac{1}{8}$	
43	$\frac{1}{8}$	..	$\frac{1}{8}$	Well formed.
46	..	$\frac{1}{8}$	$\frac{1}{8}$	Short; stout.
48	$\frac{1}{10}$	..	=	Average size.
49	$\frac{1}{8}$	..	$\frac{1}{8}$	Tall; well formed.
50	$\frac{1}{10}$	..	$\frac{1}{12}$	Tall; well formed.
53	$\frac{1}{8}$	..	$\frac{1}{8}$	Jew; well formed.
54	$\frac{1}{4}$	..	$\frac{1}{8}$	Well formed.
55	$\frac{1}{4}$	..	$\frac{1}{8}$	Tall; well formed.
60	$\frac{1}{10}$	..	$\frac{1}{8}$	Tall; well formed.
61	$\frac{1}{8}$	..	$\frac{1}{8}$	Tall; well formed.
65	$\frac{1}{4}$	..	$\frac{1}{4}$	Well formed.
69	$\frac{1}{8}$	..	$\frac{1}{12}$	Tall; thin.
70	$\frac{1}{8}$	..	$\frac{1}{8}$	Well formed.
80	$\frac{1}{8}$	..	$\frac{1}{8}$	6 ft.; good foot; toes parallel.

TABLE II.—Female Feet.

Age.	Great toe longer than second.	Great toe shorter than second.	Second toe longer than third.	Observations.
Years.	inch.	inch.	inch.	
4	$\frac{1}{6}$	..	$\frac{1}{12}$	Slight; ricketty.
4	..	$\frac{1}{12}$	$\frac{1}{12}$	Left foot; right deformed.
16	$\frac{1}{8}$	..	=	Tall; well formed.
17	$\frac{1}{6}$	..	$\frac{1}{8}$	Greek; thin.
18	..	$\frac{1}{4}$	$\frac{1}{6}$	Well formed.
20	$\frac{1}{8}$	..	$\frac{1}{10}$	Half Greek.
24	$\frac{1}{6}$	..	$\frac{1}{8}$	Irish; 6 ft.
24	$\frac{1}{6}$	..	$\frac{1}{8}$	Well formed.
30	..	$\frac{1}{8}$	=	Well formed.
30	=	=	$\frac{1}{10}$	
35	=	=	$\frac{1}{8}$	Well formed.
36	..	$\frac{1}{8}$	$\frac{1}{8}$	Well formed.
45	..	$\frac{1}{8}$	$\frac{1}{4}$	Tall; well formed.
48	..	$\frac{1}{8}$	$\frac{1}{4}$	Tall; stout.
50	$\frac{1}{8}$	..	$\frac{3}{16}$	Tall; well formed.
51	..	$\frac{1}{4}$	$\frac{1}{8}$	Tall; well formed.
52	$\frac{3}{16}$	..	=	Well formed.
53	..	$\frac{1}{6}$	$\frac{1}{8}$	Well formed.
54	..	$\frac{1}{8}$	$\frac{1}{8}$	Short; stout.
54	=	=	$\frac{1}{8}$	Tall; well formed.
54	$\frac{1}{8}$	..	$\frac{1}{8}$	Welsh; tall; robust.
63	..	$\frac{1}{8}$	$\frac{1}{8}$	
67	$\frac{1}{8}$	..	$\frac{1}{10}$	Tall; well formed.

The sign = implies that the lengths of the first and second toes, or of the second and third, are equal.

Sir James Paget forwarded, with his own observations, some results obtained in the suburbs of London by Mr. E. G. Gilbert, M.R.C.S., mainly from measurements taken under his directions. Of 164 persons, of both sexes and of all ages, 115 were found to have the first or great toe longer than the second, and in eight cases the first and second were of equal length. In forty cases the second toe was reported to be longer than the great toe; and in one case the great toe was longer than the second in one foot, and shorter in the other. In every instance where the feet of more than one member of the same family were examined, Mr. Gilbert says, they were found to be of the same form. In one group or set of observations, the number of instances in which the first toe was shorter than the second was reported to be considerably greater in females than in males.

Mr. Gilbert has since procured further information regarding the latter observations.

The female subjects alluded to were pupils in a training college for school teachers, and on a careful examination of the feet of those in residence, who were returned on the previous

occasion as having a short great toe, or have been found to possess it on subsequently joining the college, Mr. Gilbert has ascertained that there are six whose second toe is longer than the first, and three whose first and second toes are of equal length, out of a total of thirty-three. There is also one student with the second toe longest out of a total of twenty-one male pupils. The difference was not more than $\frac{1}{16}$ inch in any instance.

Owing to the fact that the parents of the students were mostly either Londoners or inhabitants of large towns, their racial origin could not be ascertained with any certainty, though Mr. Gilbert took notes which it was hoped might assist in doing so. In three cases, however, there appears to have been a very close resemblance between the subjects: the hair is described as dark; the eyes hazel; the nose not arched, the lips full. The average stature did not exceed 5 feet $1\frac{1}{2}$ inches. One was a native of the Isle of Wight. The parents of the other two belonged to Sheffield, Westbury, and London. In these three cases the first and second toes were of equal length. With the exception of the female student, who belonged to Sheffield, all the pupils with longer second toes were born in southern towns; and none of them exhibited any Celtic characteristics.

The occurrence of a long second toe in the higher and upper middle classes, at an age when it might be expected that the continued use of narrow and straight-soled shoes would cause a chronic eversion of the great toe, might perhaps have sufficiently accounted for some of the cases of a shorter great toe in Table II, had the numbers been sufficient to justify the induction. "Rights and lefts," which it appears were not invented much before the middle of the century, prevent much eversion of the great toe in male feet; but they are not, it is believed, made use of by women, except in a shape that is little efficacious.

To ascertain whether the feet of Scotch women exhibited any change in form after thirty, application was made to Professor Struthers, of Aberdeen, for information on the subject, when he at once sent me ten observations, in nine of which the great toe proved to be longest. The following are the ages, and the projections of the toes alluded to:—

Age.	Great toe longest.
25 years	$\frac{1}{10}$ inch.
41 „	$\frac{3}{10}$ „
51 „	$\frac{3}{20}$ „
59 „	$\frac{2}{10}$ „
65 „	$\frac{2}{10}$ „
71 „	$\frac{2}{10}$ „
72 „	$\frac{2}{10}$ „
84 „	$\frac{1}{10}$ „
	Great toe shorter than second toe.
63 „	$\frac{2}{10}$ inch.

In this last case, Professor Struthers measured the projection of the third toe as well as the first and second, when it was found to be $\frac{4}{10}$ inch shorter than the second.[1] This, and some other cases of the same kind, seem to indicate that the difference in length between the first and second toes may be occasionally due to an abnormal growth of the second, and not to any defect in length of the great toe.

In connexion with the question of race or heredity, it will be pertinent to mention that Dr. Pruner found that a longer second toe characterised the feet of Alsatian women, and so, by implication, not of French women generally; and it is not so in the only two skeleton feet of French women that I have measured, one of them included in Table III.[2] It may prove to be a non-Celtic peculiarity, as we have seen that it is almost invariably absent in Scotch and Irish feet, and so far as is at present ascertained in the Welsh foot also.

The opportunity which was afforded by the late exhibition of twenty Zulus at Westminster was taken advantage of to examine the form of their feet. It resulted in the somewhat unexpected discovery that no tendency existed amongst them to a long second toe. There appeared, however, to be more variability in the length of toes in the two feet than occurs in the case of Europeans; and their fourth and fifth toes were well developed, not having been stunted in their growth by shoes.

In about half the subjects, the difference in the length of the first and second toes was the same in both feet. In seven instances the difference in length of the first and second toes was least in the right foot; and in three instances it was greater.

In five instances the difference in the length of the first and second toes reached or exceeded $\frac{1}{2}$ inch in favour of the first or great toe of the right foot; and in six instances it occurred in the left foot. The minimum excess in length of the great toe was $\frac{1}{10}$ inch, and it occurred in three subjects in the right foot. The minimum in the case of the left foot was $\frac{1}{8}$ inch, and it occurred twice. In one instance the two toes of the right foot were equal, whilst the difference in the left was $\frac{1}{8}$ inch in favour of the great toe.

In five instances the difference in length of the second and third toes was the same in both feet. In six instances it was as much as $\frac{5}{10}$ inch in favour of the second over the third, in the case

[1] Some measurements of skeleton feet in the Anatomical Museum at Aberdeen were forwarded with these measurements; and the first toe in two female feet, presumably Scotch, as the preparations were made at Aberdeen, was in each case longer than the second (see Table IV).

[2] In the Natural History Museum at Oxford there are two French skeletons, in the smaller of which, apparently female, the second toe is considerably longer than the first; but the second phalanx has evidently been *restored*.

of the right foot, and in four instances in the left. The minimum excess of length in the second toe over the third was $\frac{1}{8}$ inch, and it occurred once in the case of the right foot, and twice in the case of the left.

From tracings made by Mr. George W. Bloxom, F.L.S. (Assistant Secretary of the Anthropological Institute), of the feet of the four Waganda envoys who visited this country three years ago, it appears that the difference in the length of their first and second toes was, in two instances, $\frac{1}{20}$ inch in favour of the first or great toe, the second toe in both cases being quite $\frac{5}{10}$ inch longer than the third, and this in both feet alike. In the other two subjects, the excess in length of the great toe was $\frac{5}{10}$ inch; the second toe was $\frac{5}{10}$ inch longer than the third in one case, and $\frac{3}{10}$ inch in the other case, and this, too, in both feet.[1]

These results were also unexpected.

Dr. Pruner, in a "Memoire sur les Négres," quoted by Dr. Hunt, in a note to his paper on the "Negro's Place in Nature,"[2] says that "it is true that the great toe of the Negro rarely rises above the second, but neither is it often shorter." But "a slight shortening of the great toe undoubtedly exists, not merely amongst the Negro tribes, but also in ancient and modern Egyptians, and even in some of the most beautiful races of Caucasian females."

The existence of a longer second toe in the Boschmen, and some tribes on the Congo, &c.,[3] amongst whom it appears to be racial, is important, as possibly connecting them, and more especially the former people, with the Egyptian dark race. Professor Rolleston, it will be remembered, came to the conclusion, from craniological evidence, that the Boschmen were descended from ancestors in a high state of civilisation; and it is remarkable that their representations of cows and other animals closely resemble, in outline and colour, frescoes in Egyptian tombs.

From my own observations the feet of the Botocudo Indians were found to have the second toe shorter than the first.

Skeleton feet in various museums have been carefully examined, and in many cases found to be sufficiently well articulated to allow of measurements being taken of the projection of the phalanges; and, generally speaking, no difficulty was experienced in detecting restorations, principally from the difference in colour and substance of the bones. In England, moreover, the practice

[1] The measurements being derived from tracings of the feet, may not in all cases be reliable, but they may be taken as fairly correct.

[2] "Mem. Anthrop. Soc.," vol. i, p. 6 (note).

[3] Judging from the feet of skeletons at Paris.

of mending and completing imperfect specimens is seldom resorted to, though it is common in France, and has to be specially guarded against in preparations imported from that country.

The skeleton great toes of the following savage or semi-civilised races are found to be shorter than the second toes:—Peruvians, Tahitians, New Hebrideans, Savage Islanders, Ainos, and New Caledonians—all inhabiting islands in the Pacific, or the Indian Ocean, with the exception of the Peruvians, who, however, it has long been suspected, may have reached America by sea from the West, at a date signalised by their knowledge of art: and they are thought to have left footmarks on their way. In another direction the peculiar feature appears to characterise one of the races in India.

In the following tables, the difference in excess in the projection (1) of the great toe, and (2) of the second over the first, in skeletons in the Museum of the Royal College of Surgeons, is given in tenths of an inch in the first column of fractions; and the excess in the projection of the second toe over the third is shown in the column adjoining. The skeleton feet in which first and second toes are equal in length are separately tabulated (3). The numbers in the first column are those of the skeletons in the museum. Excepting when absent or defective, the measurements of the toes of the right foot only are inserted. Where, however, the difference between them amounted to $\frac{2}{10}$ inch, the projection is given for both feet. An asterisk indicates that a phalanx is doubtful. The measurements from Aberdeen will be found in Table IV.

TABLE III.—SKELETON FEET.

(1)

No.	Sex.	First toe longest.	Inch.	Inch.
67	M.	European	$\frac{1}{10}$	$\frac{5}{10}$
69	M.	French	$\frac{1}{10}$	$\frac{6}{10}$
70	F.	French	$\frac{3}{10}$	$\frac{4}{10}$
71	M.	English	$\frac{1}{10}$	$\frac{4}{10}$
223	M.	Irish (O'Brien)	$\frac{6}{10}$	$\frac{5}{10}$
224	M.	Anglo-American	$\frac{3}{10}$	$\frac{3}{10}$
1043	F.	Australian	$\frac{1}{20}$	$\frac{1}{10}$
1068A	M.	Australian	$\frac{1}{20}$	$\frac{1}{10}$
1096	M.	Tasmanian	$\frac{1}{20}$	$\frac{3}{10}$
2288	F.	Negress	l. $\frac{1}{10}$	$\frac{3}{10}$
1398	F.	Negress	$\frac{2}{10}$	$\frac{3}{10}$
1406	M.	Tasmanian	$\frac{1}{20}$	$\frac{4}{10}$
	M.	A detached foot	$\frac{1}{10}$	$\frac{1}{10}$
	F.	2 small feet	$\frac{1}{10}$	$\frac{2}{10}$

(2)

No.	Sex.	Second toe longest.[1]	Inch.	Inch.
54	M.	European	$\frac{1}{10}$	$\frac{2}{10}$
338	M.	European	$\frac{1}{10}$	r. $\frac{2}{10}$* l. $\frac{4}{10}$
582	M.	Sikh	$\frac{2}{10}$	$\frac{2}{10}$
583	M.	Egyptian	$\frac{1}{20}$	$\frac{2}{10}$
757	M.	Savage Islander	$\frac{2}{10}$	$\frac{2}{10}$
800	M.	Tahitian	$\frac{2}{10}$	
847	F.	Aino	$\frac{1}{10}$	$\frac{1}{10}$
897	M.	Javanese	$\frac{1}{10}$	$\frac{1}{10}$
898	F.	Javanese	$\frac{2}{10}$	r. $\frac{4}{10}$ l. $\frac{2}{10}$*
1014	F.	Peruvian..	$\frac{1}{10}$	$\frac{2}{10}$
1278	M.	Peruvian	$\frac{1}{20}$	$\frac{1}{10}$
1239	M.	North American Indian ..	$\frac{1}{20}$	$\frac{2}{10}$
1283		Andamanese	l. $\frac{1}{10}$	$\frac{1}{10}$
1301	F.	Boschman	$\frac{2}{10}$	$\frac{2}{10}$
1438	M.	New Hebridean	$\left\{\frac{2}{10}, \frac{4}{10}*\right\}$	$\frac{3}{10}$
1472		Andamanese	$\frac{1}{20}$	$\frac{1}{8}$
797		Bhutea	$\frac{1}{10}$	$\frac{1}{10}$

(3)

No.	Sex.	First and second toes equal.	Inch.	Inch.
684	M.	Samoyede	=	$\frac{1}{10}$
1013	F.	Peruvian	=	
1219	M.	African	=	$\frac{3}{10}$
63A	F.	Girl's foot	=	$\frac{1}{4}$

TABLE IV.

Length of Feet.	Sex.	First toe longest.	Inch.	
Inches.		*Aberdeen.*		
$10\frac{1}{10}$	M.	Scotch	$\frac{4}{10}$	
$9\frac{2}{10}$	M.	Scotch	$\frac{3}{10}$	
$8\frac{5}{10}$	F.	Scotch	$\frac{3}{10}$	
Young.	F.	Scotch	$\frac{2}{10}$	
$8\frac{5}{10}$	M.	E. Indian (Calcutta)	$\frac{3}{20}$	
Average stature }	M.	French*	$\frac{1}{20}$	
Tall.	M.	French	$\frac{1}{10}$	
Average stature }	F.	French	$\frac{1}{20}$	
Short.	F.	French	$\frac{1}{10}$	

[1] 1088 F. Australian Feet imperfectly prepared.

To facilitate the conversion of the fractions of the English inch into French measures, the following equivalents are given. It will be easy to arrive at other values by simple multiplication or division, as the case may require :—

1 inch	=	2·500	centimètres.
⅓ „	=	0·833	„
¼ „	=	0·625	„
⅛ „	=	0·312	„
1/10 „	=	0·250	„

In the Physiological Room at the Royal College of Surgeons there are fifteen fœtuses, of ages between three and six months of intra-uterine life (numbered 3666 to 3681), the feet of which are in a position to allow of eye-observation being made. Eleven have the first toe longer than the second; and in three cases the length of the first and second toes appear to be equal. In one case the second toe is longer than the first. Eight of the examples are male, and seven are female.

It should be added, that from photographs, as well as the reports of competent observers, it appears that the great toe in the Basque foot is longer than the second. This agrees with the results of measurements of several feet of the small dark Welshmen, who are supposed, with good reason, to represent the race in this country.

On the other hand, the second toe of the descendants of the Carians and Lysians of Asia Minor is reported to be longer than the first. If this should eventually be found to be so, it would be important in connection with the longer second toe of the Etruscans, who are believed to have been allied in blood with the above people.

In this and other cases further information is required; and it is hoped that travellers will record the projection of the toes of the foot for the future, amongst their other anthropological notes. In the present paper little has been done beyond ascertaining that a long second toe does not characterise the inhabitants of this country.

The result sufficiently accords with the views of Holden, who, in his "Human Osteology," states that the great toe is longer than the second; and of Professor Flower, who believes that it characterises the European foot generally. In Professor Humphry's "Human Skeleton," the first or great toe is represented as the longest; and this is also the case in two French works of authority, the first, "Le Corps Humain," illustrated with designs from nature by Edouard Cuer; and the other, "L'Anatomie Artistique," by Duval.

In Professor J. Marshall's "Anatomy for Artists," however, the accomplished author lays it down, as a rule, that the second toe

in a well-formed foot is slightly longer than the great toe, but that in a number of instances the great toe is longest. "Numerous observations," he says, seem to indicate that the conditions in which the great toe is the longest occur more frequently in persons of tall stature, or slender frame, whilst shorter or more stoutly built individuals usually have the great toe shorter than the second." Professor Marshall believes with the majority of artists that it was the practice of the Greeks so to represent it, and it seems to be generally believed that it was an ideal form derived from Egyptian art.

This, I think there is evidence to show, was not the case; although the form of toe existed in one of the early races in Egypt, and in Italy, and was copied from nature in the works of art in those countries.

As regards the art question, although this is not the occasion to enlarge upon it, it may be mentioned that a model foot, according to Flaxman, is one in which the toes follow each other imperceptibly in a graceful curve, from the first or great toe to the fifth. This does not appear to differ much from Professor Marshall's canon if rigidly interpreted. Unfortunately, however, the illustrations of the phalanges in the "Anatomy for Artists" represent the second toe as considerably longer than the first; and most of the casts of feet in our Art schools are derived either from Roman models or restored Greek feet, as, for example, the left foot of the Farnese Apollo, and the (Roman) copy of the Discobolus in the British Museum. In both cases the second toe of the left foot is a good deal longer than the first. In the cast of a marble foot attributed to Praxiteles, the second toe is slightly longer than the first, but it is ill-formed, and appears to have been copied from nature. It has not been taken as a guide in the restoration of the Hermes (to which it is supposed to belong) at present placed beside it. Two marble feet in one of the Parthenon cases have longer great toes.

Professor Flower has remarked that a long great toe is essentially human;[1] and certainly whenever it is conspicuously shorter than the second, and the second much longer than the third, it gives the foot an animalesque appearance.

Discussion.

Mr. Hilton Price remarked that he was inclined to believe that the ancient Egyptians had the second toe longer than the first; it was of course well known in sculptures; but he had the foot of a mummy with the second toe longer than the first.

---

[1] 'Fashion in Deformity," p. 6 (note).

NOVEMBER 13TH, 1883.

Professor W. H. FLOWER, LL.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From EDWIN A. BARBER, Esq.—Report of the Proceedings of the Numismatic and Antiquarian Society of Philadelphia for 1882.

—— Pennsylvania Museum: Catalogue of the Collection of Tobacco Pipes deposited by Edwin A. Barber.

From Messrs. A. ASHER & Co.—Amerika's Nordwest-Küste Neueste Ergebnisse Ethnologischer Reisen.

From the AUTHOR.—On the Development and Distribution of Primitive Locks and Keys. By Lieut.-General Pitt Rivers, F.R.S.

—— Pueblo Pottery. By Edwin A. Barber.

—— Antiquity of the Tobacco Pipe in Europe. II. Switzerland. By Edwin A. Barber.

—— Mound Pipes. By Edwin A. Barber.

—— Comparative Vocabulary of Utah Dialects. By Edwin A. Barber.

—— The Opium Habit: its Successful Treatment by Avena Sativa. By Dr. E. H. M. Sell.

—— La Folie Universelle et la Science Mentale. By Ivan Golovine.

—— Iron from the Ohio Mounds. By F. W. Putnam.

—— Über die Zeitbestimmung der Italischen und Deutschen Hausurnen. By Professor Virchow.

—— Die Kupferlegirungen, ihre Darstellung und Verwendung bei den Völkern des Alterthums. By Dr. E. Reyer.

—— Extraits du Bulletin du Musée Royal d'Histoire Naturelle de Belgique. By M. le Professeur Paul Albrecht.

—— Mémoire sur le Basiotique. By M. le Professeur Paul Albrecht.

—— Congrès International des Américanistes. Cinquième Session, Capenhague. By le Baron J. de Baye.

—— Polynesian Origins. By D. Macdonald.

—— Sur Quatre os Intermaxillaires. By M. le Professeur P. Albrecht.

—— Sur le Crane Remarquable d'une Idiote de 21 ans. By M. le Professeur P. Albrecht.

—— Das Os Intermedium Tarsi der Säugethiere. By M. le Professeur P. Albrecht.

From the AUTHOR.—The Mounds of the Mississippi Valley, historically considered. By Lucien Carr.
—— Sur la Valeur Morphologique de l'Articulation Mandibulaire. By M. le Professeur Paul Albrecht.
—— Recollections of Squatting in Victoria. By Edward M. Curr.
—— Eureka. By J. Wood Beilby.
From the SOCIÈTA ITALIANA DI ANTROPOLOGIA.—Archivio per l'Antropologia e la Etnologia. Vol. XIII, Fas. 1 and 2.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Archiv für Anthropologie. Band XIV, 3 and 4 quarters.
—— Correspondenz-Blatt. June, July, August, and September.
From the SOCIEDADE DE GEOGRAPHIA DE LISBOA.—Expedição Scientifica á Serra da Estrella em 1881. Secção de Meteorologia.
—— Expedicão Scientifica á Serra da Estrella em 1881. Secção Botanica.
From the SMITHSONIAN INSTITUTION.—Smithsonian Contributions to Knowledge. Vols. XIII, XIV.
—— Smithsonian Miscellaneous Collections. Vols. I, II, IV, V, VIII, IX, and XXII—XXVII.
—— Smithsonian Report, 1870 and 1881.
From the SOCIETY OF ANTIQUARIES.—Archæologia. Vol. XLVII, 2.
From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—Zeitschrift für Ethnologie. 1883, Hefts 3 and 4.
From the SOCIÉTÉ IMPERIALE DES AMIS D'HIST. NAT., D'ANTHROP., ET D'ETHNOG., MOSCOU.—Transactions, Tom. XXXII, liv. 4; Tom. XLII, liv. 2.
From the KONGL. VITTERHETS HISTORIE OCH ANTIQVITETS AKADEMIEN.—Antiqvarisk Tidskrift för Sverige. D. 7, H. 1–3.
From L'ACADÉMIE ROYALE DES SCIENCES DE BELGIQUE.—Mémoires des Membres. Tom. 43, p. 2; 44.
—— Mémoires Couronnés et des Savants Etrangers. Tom. 44, 45.
—— Mémoires Couronnés et autres Mémoires. Tom. 31, 33, 34, 35.
—— Bulletins de l'Académie. 3e Série. Tom. 1–5.
—— Annuaires. 1882, 1883.
—— Tables des Bulletins. 1867 à 1880.
From the PHYSIKALISCH-ÖKONOMISCHE GESELLSCHAFT ZU KÖNIGSBERG.—Beiträge zur Naturkunde Preussens. No. 5.
From the ACADEMY.—Atti della R. Accademia dei Lincei, Transunti. Vol. VII, Fas. 11–15. Memorie. Vols. XI, XII, and XIII.
—— Boletin de la Academia Nacional de Ciencias en Córdoba. Tomo. V, Entrega 3ª.
—— Nova Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ Naturæ Curiosorum. Band 44.
From the ASSOCIATION.—Journal of the East India Association. Vol. XV, Nos. 2–5.
—— Journal of the R. Hist. and Archæol. Association of Ireland. April, 1883.
—— Report and Transactions of the Devonshire Association for the Advancement of Science. Vol. XV.
—— Proceedings of the Geologists' Association. Vol. VIII, No. 2.

From the CLUB.—Transactions of the Essex Field Club. June, 1883.

From the INSTITUTE.—Transactions and Proceedings of the New Zealand Institute, 1882.

—— Proceedings of the Royal Colonial Institute, 1882-3.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XXVI, Appendix No. 120.

—— Journal of the Royal Institution of Cornwall. Vol. VII, Part 4.

From the UNIVERSITY.—Calendar of the University of Tokio, 1881-2.

From the SOCIETY.—Transactions of the Anthropological Society of Washington. Vol. I.

—— Proceedings of the Royal Society. Nos. 225, 226.

—— Journal of the Society of Arts. Nos. 1597-1615.

—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Band XIII, Hefts 1 and 2.

—— Proceedings of the Royal Geographical Society, 1883. July to November.

—— Proceedings of the Asiatic Society of Bengal, 1883. February to June.

—— Journal of the Asiatic Society of Bengal. No. 253.

—— Proceedings of the American Philosophical Society. No. 112.

—— Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel 42.

—— Notulen van de Algemeene en Bestuurs-Vergaderingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel XX, Nos. 1-4.

—— Tijdschrift voor indische Taal-, Land- en Volkenkunde, uitgegeven door het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel XXVII, Afl. 6; Deel XXVIII, Afl. 1-4.

—— Catalogus der Numismatische Afdeeling van het Museum van het Bataviaasch Genootschap van Kunsten en Wetenschappen.

—— Journal of the Royal Asiatic Society. Vol. XV, Part 3. July, 1883.

—— Journal of the Royal Geological Society of Ireland. Vol. VI, Part 2.

—— Mittheilungen des Vereins für Erdkunde zu Leipzig, 1882.

—— Bulletins de la Société d'Anthropologie de Paris, 1883. Fas. 2, 3.

—— Bulletin de la Société de Borda, Dax, 1883. Nos. 2, 3.

—— Boletim da Sociedade de Geographia de Lisboa. 3ª Serie, Nos. 10-12; 4ª Serie, No. 1.

—— Mittheilungen der k. und k. Geographischen Gesellschaft in Wien, 1882.

—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1882. Nos. 3, 4; 1883, No. 1.

—— Transactions of the Geological Society of Glasgow. Vol. VII, Part 1.

From the SOCIETY.—Proceedings of the Society of Biblical Archæology. Vol. V.
—— Annual Report of the Leeds Philosophical and Literary Society, 1882-3.
—— Proceedings of the Society of Antiquaries. Vol. IX, No. 2.
—— Zweiundzwanzigster Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde, zugleich Festschrift zur Feier des funfzig-jährigen Bestehens der Gesellschaft.
—— I. Jahresbericht der Geographischen Gesellschaft zu Greifswald, 1882-3.
—— Schriften der Physikalisch-ökonomischen Gesellschaft zu Königsberg, 1882. Abth. 1, 2.
—— Transactions and Proceedings of the Royal Society of Victoria. Vol. XIX.
From the EDITOR.—Journal of Mental Science, 1883. Nos. 90, 91.
—— Nature. Nos. 713–732.
—— Science. Nos. 19–37.
—— Revue Scientifique. Tom. XXXI, No. 26; Tom. XXXII, Nos. 1–18.
—— Revue Politique et Littéraire. Tom. XXXI, No. 26; Tom. XXXII, Nos. 1–18.
—— Revue d'Anthropologie, 1883. Nos. 3 and 4.
—— Revue d'Ethnographie. Tom. II, Nos. 2, 3, 4.
—— The American Antiquarian. July, 1883.
—— Timehri. Vol. II, No. 1.
—— Bullettino di Paletnologia Italiana. Nos. 6 and 7.
—— Panjab Notes and Queries. Vol. I, No. 1.

The election of the following new members was announced:—G. B. BARRON, Esq., M.D.; D. J. CUNNINGHAM, Esq., M.D.; H. O. FORBES, Esq.; JAMES SIDNEY HUNT, Esq.; Captain EDMUND CECIL JOHNSON; R. M. MIDDLETON, jun., Esq.; Captain C. A. MOLONEY; SYDNEY B. J. SKERTCHLY, Esq., F.G.S.; JOS. SMITH, jun., Esq.; and JOHNSON SYMINGTON, Esq., M.D.

EXHIBITION *of* OBJECTS *from* ANCIENT GRAVE-MOUNDS *in* PERU.

By JOHN E. PRICE, Esq., F.S.A.

MR. PRICE exhibited a series of objects which had been obtained from ancient grave-mounds in Peru, and explained that he was indebted for the loan of the collection to the Rev. C. L. Acland, M.A., Head Master of the Royal Grammar School, Colchester, and that it formed part of a large series of interesting relics found at Arica, in the year 1868. The discovery was due to the effects caused by the wave of an earthquake, which laid bare a

number of ancient mounds along that particular line of coast. On examination, these were seen to be sepulchres belonging to an antiquity of which no legend or history could be obtained. The objects exhibited were found on the spot by a midshipman, who remarked that had he the opportunity he might have filled his cabin instead of contenting himself with what could be removed in a box. The excellent preservation in which all were found was to be attributed to the absence of rain in Peru; they were covered in and protected by the dry sand, and would appear to be imperishable. The collection comprised objects principally to be associated with the domestic life of the ancient Peruvians; for example, specimens of pottery, pins and needles formed from the hard thorns of the Acacia, fish-hooks and pins of bronze, fishing lines with weights attached, leather sandals, a two-edged comb, hair and Llama wool woven into braids and tapes, a harpoon or spear with fine flint head attached, spindles and spindle-whorls, and an interesting little bag containing antimony or other metallic substance, found suspended round the neck of a female corpse; a bolas of a single stone, and an interesting example of the "quipus" or cane, wound round with coloured thread. The quipus, as described by Prescott, was a cord some 2 feet long, composed of different coloured threads lightly twisted together, from which a quantity of smaller threads were suspended in the manner of a fringe, used for recording events and the like among the ancient Peruvians and Mexicans. The threads were of different colours and tied in knots. The colours denoted sensible objects, as white for silver, yellow for gold, and sometimes also abstract ideas, as white for peace, and red for war. The quipus was used chiefly for arithmetical purposes, the knots serving as ciphers. It constituted a rude register of certain important facts or events, as of births and deaths, marriages, the number of persons qualified to bear arms, or the amount of stores in the royal magazine. The mysterious science of the quipus supplied the Peruvians with the means of communicating their ideas to one another, and of transmitting them to future generations.

Mr. Price also referred to the strange but general resemblance to be noted between many of the objects and stones familiar in Roman and Saxon burials, particularly as to the two-edged comb, the pottery and the *vorticelli*, or spindle-whorls, used by the ancients for keeping the thread of the distaff in tension. Examples of these, both of bone and earthenware, discovered in Colchester, were also exhibited.[1]

[1] See description of Peruvian Pottery brought over by Consul Hutchinson from Peru, by J. E. Price ("Journ. Anthrop. Inst.," vol. iii, 1874, p. 100).

Discussion.

Mr. Berdoe inquired if the coloured register exhibited was the same as the "quipus" described by Prescott, in his fourth chapter of the "Conquest of Peru," and which was said to be used by the Peruvians as means of registering births, deaths, marriages, &c.

The reply was in the affirmative.

Exhibition *of* Lamps *from the* Orkney Islands.

By J. G. Garson, M.D.

Dr. Garson exhibited two lamps which he had procured from the Orkney Islands for the University of Oxford Museum (see fig. 4, Plate VII). They were very similar to the lamp of the Eskimo, described by Mr. E. B. Tylor in his paper read at the end of last session. Each lamp consists of two flat receptacles, prolonged into a spout-like depression on the anterior portion. To the upper and posterior edge of one of these receptacles is fixed a narrow piece of iron, into which is firmly inserted an upwardly inclined projecting rest for the upper receptacle, which has a shorter piece of iron with a slit in it attached to its posterior edge. The two receptacles are therefore placed one above the other. Into the upper one the oil is placed. The oil usually burnt is linseed or fish oil, and the cellular pith of a couple of rushes serves for wick. The sole object of the under receptacle is to receive the oil which drops from the upper one. By the inclined projecting bar being notched the pointed extremity of the upper receptacle can be elevated or depressed as required. To the upper extremity of the upright piece of iron is attached a hook by which the lamp is suspended. There is no automatic contrivance in the manner in which the lamp is hung, for the constant supply of oil to the wicks, as some people have imagined. The supply has to be regulated by the person using the lamp, who has to alter the position of the upper receptacle on the rest by moving it forward as the oil is consumed, and so depress the pointed portion of the receptacle in which the wick lies.

This form of lamp used to be very common in the Orkney Islands and in the North of Scotland till about twenty years ago, when the price of paraffin fell considerably, and the ordinary paraffin lamp took its place. It is now entirely a thing of the past, at least so far as the Orkney Islands and the North of Scotland are concerned.

DISCUSSION.

Mr. BERDOE described a brass lamp he had lately seen in Tangier, of precisely similar construction and principle as that exhibited from the Orkneys.

Dr. GARSON added that there was a brass lamp, similar to those he exhibited, but more highly finished, in the Museum of the Antiquarian Society of Scotland in Edinburgh, which had been obtained in Scotland, a fact that was interesting in connection with Mr. Berdoe's remarks.

EXHIBITION *of a* DEFORMED SKULL *of a* CHIMPANZEE.

By Professor W. H. FLOWER, LL.D., F.R.S., *President.*

PROFESSOR FLOWER exhibited the skull of a young chimpanzee (*Troglodytes niger*), which had been sent to him from Lado, in the Soudan, by Dr. Emin Bey. It presented an interesting example of acrocephalic deformity, associated with complete synostosis of the fronto-parietal or coronal suture, and partial obliteration of the sagittal suture, both of which are normally open long after the age to which this individual had attained. The specimen has been more fully described and figured in the Proceedings of the Zoological Society for 1882, p. 634.

Professor Flower exhibited in illustration an exactly corresponding deformity in the cranium of a negro from the West Coast of Africa, but remarked that he was not aware that any case had previously been recorded of its occurrence among the apes.

The DIRECTOR then read extracts from the following paper:—

NOTES *on some* AUSTRALIAN TRIBES.

By EDWARD PALMER, Esq.

The Tribal Territories.

THE information which I have embodied in the following notes has been obtained by personal observation and inquiry; in those few instances where my statements rest upon the observation of others I shall quote the authority upon which they are given.

The tribes referred to are the following:—

1. *Mycoolon.*—These people hunted about the Saxby River, a tributary of the Flinders on the eastern side, which joins that

river about a hundred miles from the shores of the Gulf of Carpentaria. They hunted to within forty miles of Normanton on Spear Creek, and occupied the Lower Saxby River, the country about Donor's Hills, and south nearly as far as Millungera Station, and east as far as Creen Creek, and through the sandy forest bordering on the Saxby Plains.

2. *Myappe.*—This tribe joined the Mycoolon on the western side, and occupied the country about the Canobie Station and the junction of the Dougald and Cloncurry Rivers. They hunted down the Cloncurry to Sorghum Downs, about forty miles below Canobie Station, and westward over the country which is in McKinley's Journal called Davis Creek, but now known as Dismal Creek,[1] and as far as Middle Creek between the Dougald and Caralah Rivers, taking in Fort Bowen Mountain and the Middle Cloncurry River. Their country must have been about sixty or seventy miles in length, by about forty or fifty in width.

3. *Mythuggadi.*—This tribe occupied an extent of country of over one hundred miles square, comprising the Upper Cloncurry River, Julia Creek, McGillivray's station on Eastern Creek, and halfway towards the Flinders across the immense treeless downs. Their country was rather poor in game.

4. *Mygoodano.*—These people used to hunt over the west side of the Leichardt River, and extend as far west as the Gregory River, and up by the mountains to the south; occasionally to Burketown and the Albert River northwards, where they joined and had intercourse with the Myngeen tribe at Burketown, who owned the country thence to the coast.

5. *Yerrunthully.*—This tribe occupied country extending to the westward of the Flinders River to Cambridge Downs; sometimes they hunted a little lower and southward as far as Lammermoor Station (Christison's) on Tower Hill Creek, where they joined the Moothaburra tribe, which extended eastward until meeting with the tribes inhabiting the country about the Suttor and Belyando Rivers.

6. *Kalkadoona.*—These people inhabit the country at the heads of the Cloncurry, and southwards for a very long way; westwards across the heads of the Leichhardt and Gregory Rivers, and next in position to the Mygoodano tribe. Not much is known of this peculiar people, as they only occasionally visit the Upper Cloncurry.

7. *Koogobatha.*—This tribe once roamed over what is now the Gamboola cattle run; mostly on the north side of the Mitchell River, and as far down as the junction of the Lynd

[1] The native name of this creek is Thalmun.

River, followed down by Leichhardt in his first journey. This tribe is one of seven allied tribes, whose names all begin with the word *Koogo*, which I understand is the equivalent of "My," which is found in the four first names in this list, and which is said to have the meaning of a "word" or "language."

These seven allied *Koogo* tribes occupy the country through which the Mitchell, Palmer, and Lynd flow, and also the sources of the Kennedy River.

8. "*Goonine*."—The name of a tribe a little north of Wide Bay, on the Lower Burnett River. Travelled as far north as Port Curtis, 150 miles, and south to Maryborough, 50 miles, spoke a dialect nearly similar to Wide Bay. *Narung* was the name of a tribe (they joined at Port Curtis to the north) that also used a dialect very similar to the Wide Bay tribes.

9. *Kombinegherry*.—This tribe lived on the Bellinger River, on the east coast of New South Wales, not far from the Queensland boundary line, and on the Macleay River.

The tribal territories, or tribal localities, as they may be called, were recognised by each tribe, and their boundaries, though not very clearly defined, were sufficiently well known to form landmarks for them to observe when getting into neutral or debatable ground.

No actual or individual right seemed to belong to any one person to any particular spot of these localities, or even any inheritance in the land itself, either tribal or individual, but merely the right to the game that lived on such territory; and such right belonged to the tribe as a whole, and each one shared that right in common with the rest of the people composing the tribe. Any one else interfering with the game, or trespassing for such purpose, was looked upon as an intruder, and would be called on to give an account of himself, and unless he was accredited as a messenger or herald would pay the penalty most likely with his life.

These aborigines have no idea when they commenced ownership or when they first entered on their territory. All they can say is that their fathers were there before they were, and others before them, back to times out of reach; they had been there always, and had had that country for use. From the old ideas connected with their rights of hunting over certain territory, each tribe must have remained in possession for countless generations of its particular locality.

The boundaries must have been settled in some distant date of their history, for they were to a certain extent respected. When tribes met at certain places such as large lagoons in another's hunting-ground, they did so with the permission or consent of the owner of that place; and when the particular

mission they were on was fulfilled—as, for instance, a *Bora* meeting or general gathering to corroborry, they separated and each went to their own home.[1] Yet they never hesitated to enter or cross a neighbour's hunting-ground, for the purpose of carrying out any blood feud, or for revenge for murder, or for any warlike enterprise.

There was no particular sizes or extent of country comprised in a tribe's domain, but the area depended upon the nature of the country occupied. In the large treeless plains of the Flinders and Cloncurry Rivers, where game was scarce, and at times water also, the extent of country roamed over was larger than in mountainous coast lands, where game was more plentiful and travelling more difficult. On the large plains just mentioned the only timber is along the river banks, and no wallabies or kangaroos are found in the plain country, very few emus exist there, and the principal sources of food are flockpigeons in the season, and the so-called turkeys, or bustards, and fish. On the larger rivers, like the Mitchell, Ennasleigh, and Gilbert, large numbers of wallabies live in the thick undergrowth along their courses; the larger kangaroos abound in the ridges, and fish are plentiful.

Such circumstances will account for the population in some districts being closer together, and I have found that the tribes about the Palmer and Mitchell and Walshe Rivers have less territory allotted to them than the tribes in the plain country further west.

How the tribes branched off from each other and settled in new domains, and whether peacefully or otherwise, is a matter that has happened so far back that no traditions now exist in the present day of such movements.

Physical and Social Characteristics.

Among the northern races there is a difference in colour: some individuals are nearly black while others are reddish brown. This is not peculiar to the coast tribes, for the same difference is to be observed inland on the Cloncurry. In fact, none are absolutely black, as may be observed after bathing; and in all tribes there are a few individuals who have a skin of a coppery but yet dark colour. Some blacks whom I have observed, and especially three women who came to the steamer at Bowen, where they dived for silver thrown by the passengers, were light brown or reddish brown.

[1] The word *Bora* belongs to a New South Wales language, meaning the ceremony of "making young men," and, like many other aboriginal words, has been carried onwards by the white men until often the original derivation has been lost.

There is no indication in the weapons and manufactures of the northern tribes to which I refer of any intercourse with Malays.

Speaking generally of the northern tribes to which I here allude, I may note that the hair is mostly straight, with an inclination, when clean, to wave; all the men are bearded, straight, well grown, and strong. Physically these men appear to me to be superior to those of tribes further to the south, and inclined to be tall. One man on the Saxby River is said to have measured 7 feet in height.

On the Lower Flinders River the women are noted for their height, and are capable of great power of work and endurance of fatigue. The people are generally healthy, though subject to colds and coughs. The women have little difficulty in child-birth, and death from such a cause is exceedingly rare. At such times they are attended by one or two old women, and the husband keeps entirely away. The umbilical cord is cut with a mussel-shell close to the skin, and that is all the trouble taken about it. The child is not washed in water, but if the weather is cold is rubbed with fat and charcoal. At first the little thing would be considered white, but in a few weeks the colour darkens. They are all fond of their children, yet their affection is about equally divided between them and their dogs, and I have seen them lick them, kiss them, and nurse them, and even suckle them at the breast.

The child is carried under the arm when young, in a piece of ti-tree bark, with a string round the centre and over the shoulder, the arm pressing it on the outer side, to keep it close. When a little grown the child is carried across the hip, supported with one arm, and afterwards across the neck, holding itself on by the mother's hair. The youngsters are precocious, and able to take care of themselves and hunt at a time when white children are all but helpless.[1]

Infanticide is not so common as supposed, though a girl's first child is often sacrificed. Abortion can effect the same purpose, and they have no hesitation in having recourse to it, effecting their object by blows. One girl was known to have thrown herself across a log to produce the death and speedy delivery of the child. The killing of a new-born infant is a matter of small moment to Queensland blacks; if one expresses abhorrence at such an act they merely grin.

The northern blacks are stoical, and possessed of great forti-

[1] The mothers flatten the noses of their young children by pressing it occasionally with the hand on the point, or laying it flat on the face. The natives laugh at the sharp noses of Europeans, and call them in their language "tomahawk noses," much preferring their own style of flat broad noses.—E. P.

tude in enduring hunger and thirst uncomplainingly. They will receive wounds and punishment without flinching, and meet death with silence and great sternness.

They can feign death as well as their companion the wild dog. Even when desperately wounded, they will lie without a token of life, and suffer any inspection, but when all is quiet will carry themselves away, and generally recover from wounds that would kill a white man.

The women lead a hard life, and are subject to much abuse and hard treatment at the hands of their husbands: blows over the head with a stick are the most common mode of correction, and spearing through the body for a slight offence; even to kill a gin is not considered a very great offence. Yet I must note that I have known couples live to old age and have large families (four or five children) whose bond of union seemed to be a mutual regard. The man had no other wife, and she no other man. Such instances were, however, uncommon, as the man had generally tried to keep some other woman some time or other of his life. Women were often compelled to live with men they did not like.[1]

Some of the females when young are comely in face, and have beautiful figures, with small hands and feet, and a perfect carriage. They have bright shining eyes, merry voices, and a clear ringing laugh; and in spite of a life of hardship and exposure, and blows from friend and foe, the women sometimes attain great age. Instances of both sexes with white hair, and all the appearances of seventy years, are common among aboriginals when first interviewed by whites.

Men are allowed several wives; instances are common of two and three, and one or two I have known to have even as many as six wives to one man. There are some men who never seem to have a wife: these are principally young men, who have not had a chance of procuring one. I knew one man who had been imbecile for years from sickness, and yet he made his gin obedient to him.

The circumstances under which a man would obtain more

[1] The women are modest in their habits; for instance, when sitting down, they do so in such a manner as to hide what nature intended to be hidden. Their ideas of nakedness are not gross or rude, but simple and natural, as part of their simple and natural life. They are as innocent of shame as the animals of the forest. They appear to most advantage when naked, the men showing their well made and muscular bodies best without any clothing, and their nakedness does not appear unseemly, as if a white man were stripped. This refers to natives as they are first found by Europeans; even after being used to clothes, they delight to get everything off at times and walk about as of old. Black boys, used to wear clothes for years, invariably take off everything when they go to sleep however cold the night may be, thereby following out an old instinct.—E. P.

than one wife would be by persuading other blacks to give him one, or by capture of a woman, or by stealing one from some distant tribe, or by inheriting the widow of a dead brother. A new woman would always be beaten by the other wife, and a good deal would depend on the fighting powers of the former whether she kept her position or not. In these rows the husband would take the part of the new wife, or the favourite wife.

The faculty of locality, or observation, is strongly developed, even in the young. All blacks can find their way through scrubs or bush, or over plains for any distance, as if by instinct, going in a straight line to any place they wish. In fact, all their senses are well developed, especially the sight, which is keen and far-seeing. Many blacks on the Flinders have been noticed with a scum over one eye, or one eye turned white, and the cattle on the plains are subject to the same disease, caused by flies after the wet season.

There is no hereditary chieftainship, or any one possessing authority among the northern tribes, so far as can be made out; one man being as good as another. To old men, however, great respect is shown, and whatever authority is acknowledged among them is centred in the aged, on account of their years and grey hairs. All matters connected with their social affairs are settled in open council at night, when each man speaks from his camp in turn, and is listened to without interruption. No young men or lads join in the talk, but when merely social topics are discussed women often put in a word, especially the old. The elders were always treated with respect, never addressed rudely or with disrespect.

They have messengers who travel long distances from tribe to tribe to carry news and make appointments to meet for hunting, dancing, *Bora*, or fighting. Their persons are, in a measure, sacred.

Cannibalism.

Blacks in Northern Queensland make no secret of such a thing as having eaten human bodies; they acknowledge it openly. At the same time there is every indication that the custom is followed more from certain traditions than for the sake of food. They are not cannibals as the New Zealanders were, or South Sea Islanders. Some blacks are buried without being eaten; in fact most are. In Wide Bay those to be eaten are skinned, and the skin is wrapped round a bundle of spears, with the hair left sticking up at the top, and the finger-nails are left on. The relic is carried from camp to camp and stuck in the ground

at each one, when it is surrounded by the women-mourners, who screech and cut themselves with tomahawks.

In the Gulf country the blacks killed in fight are eaten. If they die from wounds late in the evening or during the night they are cooked in the morning. A large hole is made in the ground and the body is cooked in one piece: it takes three or four hours to cook a blackfellow. The inside is not eaten, but is taken out and buried. The Gulf tribes do not skin their dead before roasting them. Having eaten all the flesh, the bones are placed in a tree or buried. The bodies of enemies killed are left where they fell; those of their own side only are eaten.

Children are eaten when they die, but the crime of infanticide is not very common, unless in the case of a first child.

Hunting Game.

Some of the tribes make large nets of coarse mesh and strong cordage for catching wallabies in, and at a general gathering of the people a great many of these nets are placed in different positions, with stakes upright, within a few hundred yards of each other. Where there are patches of scrub between, they make long "wings," leading towards these nets, of boughs, and drive the game towards them. The game that passes one net may be caught against another, and those that pass all the nets are killed by blacks outside. The Mycoolon tribe not having any wallaby have no name for it, but they make nets to catch emu with when drinking, and also for snaring ducks aud water-hens. These latter gather in numbers after some wet seasons, running along the watercourses, and have a habit of always running along the ground, and refuse to fly unless frightened. Blacks, knowing this, take measures accordingly; they make long low fences of brushwood, polygonum, &c., alongside the watercourse, only 2 or 3 feet high, with others coming in towards them at an acute angle. Near where the fences meet a net is spread, and a black waits there to draw it tight when full. The birds are driven down the fence by a blackfellow showing himself at a distance.

To snare ducks a net is fastened overhead among the trees, and the blacks guide the flight of the game by throwing pieces of bark like a boomerang above them if too high, or beneath them if too low, making at the same time a shrill whistle, in imitation of a hawk. Pigeons are snared at the watering-places by a man concealed close to where they water, boughs having been placed round the edges of the pool or water-hole, compelling them to run in at a certain place, where some dead pigeons have

been placed in an upright, lifelike position. Turkeys are caught in the open plain by a man with a bush in one hand and a long noose fastened at the end of a long light spear; he follows one bird until close enough to slip the cord over its head.

Fish are caught in many ways, often in small hand-nets fastened on to a circular piece of thin stick; or shallow lagoons are dragged from end to end with a fence made of boughs; or traps are constructed of boughs, and the fish are driven in.

Crayfish are a favourite food, and are caught by hand, their long claws being seized in the mud. Turtles are caught when on their way to lay their eggs. The sawfish is only eaten by the old men, as it is said to cause sores to come out on the boys or females who eat of it.

They know the use of hooks and lines for fishing, forming their hooks out of bone or hard wood.

Food and Cooking.

After the wet season roots and seed are plentiful, and form a considerable part of the food of the natives, especially in the great plain country to the westward. They all use the seeds of a small grass which grows upon pebbly ridges, called by them the "Jil-crow-aberry" (*Sporobolus actinocladus*). The stalks are steeped in water to soften the seeds before grinding. The common rice (*Oriza sativa*) is gathered in large heaps, and threshed out on large flat stones, and the seeds are then steeped in water after being husked. A list of most of the vegetable food will be found in the part of these notes relating to plant knowledge on the Mitchell River. The natives have a greater abundance of animal food than on the Flinders, where no kangaroos, and not many emus, are ever found. The distribution of food supplies are, for the Flinders country, snakes in great numbers, pigeons and ducks, hawks, owls, fish, rats in great numbers, dogs, and roots and honey; and for the Mitchell River country numbers of wallabie, the larger kangaroo, crocodile, emus, fish, ducks, yams (*karro*), and honey, but there are no pigeons, few hawks and snakes.

All the natives use the large grubs called *Muthera*, taken from the roots of the whitewood (*Atalaya hemiglauca*); these are as long as the finger, and are considered as a great delicacy.

They eat the young ants and eggs, and those of the white ant particularly, burrowing under the large dome-like nests where these ants breed underground. They gather the young ants with wings about to colonise, eggs, larvæ and all, and clean them from pieces of clay, straws, sticks, and rubbish, by rolling them up and down in a long basin made of bark. They eat every-

thing that is eatable. At the Saxby River they are fond of the small harmless crocodile (called *Chilcha-boona* and *Kulcha*), which are very numerous in the Gulf rivers in fresh water. The blacks swim after them and catch them with their hands; the eggs of these reptiles are found in the sand of the rivers, and are used as food.

They roast all their food, or bake it in the ashes, making hollows in the ground and heating stones therein, in which the game is placed and covered over completely with hot ashes.

For fish and small game leaves are frequently placed on the stones, and also over the game before covering it up with the ashes. Stones are carried often from the bed of a creek or river some distance to use for heating the ovens, and if no stones are available, ant beds are broken up in small square pieces and made to answer.

All game is cleaned thoroughly before being roasted, first placing it in the flames to scorch, and then removing the inside by drawing it out of the smallest hole they can make. The inside is cooked and eaten while the body is roasting. Some birds, such as ducks, pigeons, and turkeys, are split open and laid on the ashes, while others, such as geese or swans, are roasted whole, hot stones being thrust inside them to help cook the faster. Game is never kept uncooked any time, but they make fires during the day when out hunting, and cook what they catch. It is very seldom that game, except emu or the large kangaroo, is cut up before being cooked.

Division of game takes place according to old-established rules, in which they practise considerable self-denial, the hunter often going short himself that others might have their recognised share. When a kangaroo is killed, the hind leg is given to the hunter's father, with the backbone; the other leg to his father's brother; the tail to his sister; the shoulder to his brother; the liver he eats himself. Sometimes his own gin will be left without any, but in that case it seems to be the rule that her brother gives her of his hunting, or some one else on her side. She will not get much from her blackfellow, unless there is a surplus. All game has to be shared according to rule, the best part going to the father's camp, the next to the father's brother's. A blackfellow would rather go short himself and pretend he was not hungry than incur the odium of having been greedy in camp, or of neglecting the rites of hospitality.

Snakes were broken in pieces and handed round.

Personal Marks.

Most of the Gulf natives mark themselves with raised cuts, across the chest and upper arm, made with flints at various

times while young. These cuts are merely ornamental, and convey no idea of tribal connection. All were more or less marked, and some of the bands of raised flesh were firm and hard like strong cords. One gin I observed had three rows of double cicatrices down her back, composed of eight couplets in each row.[1] The middle row across her spine was smaller than the two outer. The scars were very regular, and the rows set off a very graceful figure. Besides these she had several longer bands across her hips, below the small of the back; others on the upper arm, and bands of raised marks between her breasts. The women are said to mark themselves in this manner to add to their looks, and to make themselves attractive.

At the Bellinger River this species of "tattooing" is called *Munding*. The septum of the nose was always bored through, in which they occasionally carried a stick, but the ears were never bored. The hair of the men was worn long, sometimes tied in a knot in which a yellow feather was worn; that of the married women was always cut short, while unmarried women wore theirs long. Young girls wore a fringe round the waist made of opossum-hair twine, which was twisted by means of a crossed stick, the long ends being worked backwards and forwards on the thigh; the women also wore armlets of hair on the upper arm.

Weapons.

All the northern tribes of blacks use the reed-spear, generally barbed, which is thrown by the aid of the *wommera*. At the Mitchell River, and among some mountain tribes, a fighting man will sometimes not be properly equipped unless he carries a bundle of a dozen. These spears are made of one piece of hard wood for the point, joined with gum and sinew to a lighter piece of reed, in the end of which a hole is left bound round with string, into which fits a peg on the *wommera*. These spears are barbed with another piece of hard wood, fastened on near the point with fine sinew and wax, or pieces of sharp quartz or flints are embedded in gum on opposite sides of the spear. One spear found in the Normanby River had eight jags laid on one after another, flat and close to the shaft; these were all of the

[1] In Wide Bay, a gin was seen with small zigzag markings all over her legs and thighs, about 1 inch long and continuous, but not deep, merely the skin being marked permanently.

end of the sting-ray's tail, fastened very neatly to a shaft made out of the cabbage-tree (*Corypha australis*). Latterly the points have been made of pieces of telegraph wire, which the blacks steal and cut up for the purpose, using a barb of the same material. These light spears are thrown a great distance with the *wommera;* the native stands sideways, and with the throwing-stick between the fingers and thumb, he throws the light reed and spear to a certainty at over one hundred yards.

In addition to the spears they use the boomerang, but more for killing wild fowl than for fighting; they are made with only a slight curve, and do not return as do those used by the Wide Bay blacks, who use one much more curved, which is thrown for amusement, and returns close to the thrower. The boomerang of the northern tribe is used most frequently for beating time at corroborrees; and a throwing-stick, made of hard wood, 3 feet long, thinner at one end than at the other, is used for killing small game. A large heavy piece of round solid wood is used with two hands for fighting. The *wommera* is made of straight hard wood, flat, 2½ inches broad, and thin, with a strong peg fastened at one end, and frequently adorned with two white flat shells. The gins use a long pointed stout stick, hardened in the fire, for digging for roots from the earth, and for fighting among themselves.

Shields are seldom employed; the tomahawk is not used as a weapon, being reserved only for procuring game, and bows and arrows are unknown to them.

Manufactures and Ornaments.

The few manufactures consist of cordage, coarse and strong, for nets for catching fish and wallaby; and fine twine for bags and lines, and various other uses; *koolimans*[1] are made from the bark of the *Eucalyptus tetradonta* and strong large bags of cord, barred in red and brown, and capable of carrying great quantities of various articles, such as roots and fruit.

Articles of adornment, such as shells ground down to an oval shape with a hole bored through, bands for the forehead, necklaces of reeds strung on string for the neck, small instruments for cutting, such as flints fastened in handles of bark, and ochre for colouring are also used.

[1] These *koolimans* are also made of a piece of light or soft spongy wood, such as that of the coral tree (*Erythrina*), Kurrijong (*Sterculia*), &c., hollowed out with stone chisels when the wood is green. They do not split with the sun, or absorb water, and are very light. Those made of bark are cleaned and neatly tied at each end with a wooden skewer passed through the folds of the bark as it is doubled up; both kinds are used for carrying water, fruits, &c.

Canoes are only found among the coast tribes, where they are much used in the calm waters inside the Barrier Reef, and among the islands of the Gulf of Carpentaria. They are formed of three separate sheets of bark, cleaned of their outer rough covering, pointed at each end, and bored with holes along the edge for sewing together. One sheet forms the bottom, the other two making the sides and the ends. A piece of filling, or a roll of grass, is sewn in between the edges to strengthen and fill up the seams. The inner bark is always made to be the outside of the canoe. A rim is sewn of tough bands round the gunwale, to add stiffness and strength, while a cord across the centre keeps it from spreading, and a piece of wood acts at either end to keep it apart. Such a canoe is capable of carrying four or five persons, and can be used in a moderate sea. The blacks get into them out of the sea without upsetting, and bale out with a large shell. Holes in the bark are sewn up with grass, and broad paddles, 4 feet long, are used.

Drawings and Marks.

In caves and hollow rocks, where natives have been in the habit of resorting at times, they have left impressions and rude drawings of animals and men done with pipeclay, ochre, or charcoal.

Near the Roper River, close to the sea, I have been informed there are some long, overhanging sandstone rocks, with hollows worn away, where the natives have long had camping places. The face of the rocks bear evidence of ancient art, for they are covered with drawings in many colours; some are supposed to have been executed ages ago.

On the face of a small rocky cave near the coast range, close to Cooktown, there are figures which were evidently done by an aborigine before the advent of white men.

One figure has red rays proceeding from the head all round on every side. The mouth is wanting in all.

Sheets of bark are also used by them to draw figures on, and trees are marked with signs and cuts near graves and at *Bora* grounds.

The marks cut in their message sticks are not supposed to have any intelligible meaning, but had to be translated by the bearer. One of my informants, a blackfellow of the Myappe tribe, said these marks had no meaning to him, but that they might have a meaning to some of the blacks.

Boomerangs were also marked, but these marks were merely ornamentation in waving lines, yet they denoted ownership. A tree containing a "sugar bag," or bees' nest, is also marked by

the finder, and was thus protected to him until he wanted it. Any one disregarding such a mark would be regarded as doing wrong, and it would lead to a quarrel.

Amusements.

One of their amusements in summer weather is followed out in water by diving and floating quietly, or coming up with the head covered with duckweed for concealment, in imitation of water birds and animals in various ways. Games that tend to sharpen the eyesight and develop the arts of secreting themselves, and thereby helping to baffle their enemies, are the favourites. They will sit round in a small circle on the ground, and play a game with the lens of the eye of a cat-fish, a tiny clear speck. This is passed round from hand to hand, and dropped suddenly among the sand, and the one who first sees it is the winner, and in turn drops it again.

They also play at throwing a ball from one to another. The children play with a leaf heated and twisted, which is flicked into the flame of a fire, and they watch it ascend in the smoke in exact imitation of the movements of a boomerang. They sometimes use the winged seed of *Atalaya hemiglauca* (the whitewood), the gyrations of which cause them amusement. To play with spears made of a cypress or rush, about 3 feet long, is a game that lasts for hours; or trying to spear a circular disc of bark as it is trundled along, causes much amusement.

In cloudy days they search under the dry limbs of a standing tree for the excrement of the small honey-bee, which remains within on such days. It is very minute, and none but the sharp sight of an aborigine could detect among the leaves and sand an atom so small that when laid in the palm of the hand it only looks like a tiny grain of yellow sand.

They are fond of sitting down and making footprints of all animals and birds and children, in a smooth place levelled with the hand, imitating the tracks with marvellous exactness.

I may note here that they recognise the footprints of most of their acquaintances from some peculiar shape of the foot, or its impression on the ground.

They are not given to boisterous games of strength or wrestling, so much as lighter kinds of amusement, such as throwing a pointed stick on the ground, causing it to rise and travel a long distance afterwards.

They have corroborrees, songs, and dances, the same as other Australian tribes. Parodies on scenes in life are worked up into song with a dance to match. A war party may be the subject to be parodied, when they will pourtray the arrival at

the enemies' camp, the surprise—coming round the trees and looking in on the victims, pointing at them and making signs to one another—then the attack and killing, and victorious return. Some have comical allusions, and will be received with the same amount of fun and laughter at each performance.

Some corroborrees are learned from strange tribes, and may be sung in a language to which they are strangers, and tribes meet to practise and exchange dances and songs, into which they will enter with great interest. Most of them take a pride in the dance, and wish to appear to advantage in paint and step and time. No strict rule is followed as to the decorations for the dance; some use bars of white clay across the body, or down the legs, while others will be spotted with white. No indecent or lewd dances are practised by them. In all their dances they keep excellent time, and stop suddenly at the end. Two boomerangs are used by the men to keep time, and the women squat on the ground in front of the dancers, and beat time on something wrapped up in front of them or in their legs. The ground is cleared of leaves, and a few small fires are lighted in front.

Many tribes join together to hold a large ceremonial corroborry, for which they have been practising for some weeks, in which only a few may join; but in all cases, as soon as a white man appears, the spirit dies out of the dance, and one after another drops out and retires. They like to be exclusive in their dances and *Bora* ceremonies, and the presence of white men at them is never sought after, and only tolerated at any time for fear of being thought rude or uncivil.

Beliefs and Superstitions.

Much of the information which I am now going to note as to their beliefs and superstitions I obtained from an intelligent old aborigine, seemingly of about sixty years of age. He could not speak English, and his information was obtained by the interpretation of several black boys who spoke English, and who checked each other's accuracy. I am satisfied that his statements are perfectly aboriginal in everything, without any ideas derived from whites. His name was *Plungreen*, which signifies "swift footed," or "fast runner," having been in his younger days chased by the blacks in the Leichhardt a great distance, without being caught. He had only four toes on each foot, having cut off each small toe himself, as it hindered him in running by catching in the grass. He was a tall, straight, wiry-looking old man, and a truthful and faithful aborigine of the Mycoolon tribe.

These Gulf tribes believe in a life after death, in a place they call *Yalairy*. They believe in spirits which they call *Limbeen-jar-golong*. They believe in a spirit above who looks after them when they are up there after death. When a blackfellow dies, they think his spirit stays for a time about his grave, or comes round the camp, and after a time goes up by the Southern Cross, which is used as a ladder to the milky way (*Boonyo*). The latter is called the road to Yalairy, and the dead travel along this road towards the north-east till they arrive at that country. It is described as a good land, a nice place, full of beautiful shady trees, and with plenty of water, with all things to eat that they have here. There will be game to hunt, kangaroos, &c., and their dogs, and their women and children. They do not fix the place anywhere, only say it is far away somewhere, and they think among the stars. The custom of knocking out the two front teeth is connected with the entry into their heaven. If they have the two front teeth out they will have bright clear water to drink, and if not they will have only dirty or muddy water.

They believe that there are two large carpet snakes (*Kooremah*) of immense size, about forty miles long, either in Yalairy or on the road to it, which the dead blackfellows kill and eat, and which they believe are then reproduced; they fear these monsters.

Other spirits are the *Limbeen-jar-golong*, so called from the bark of a tree, as they are said to live inside the bark of a tree or on the limbs. These spirits are supposed to come out at night and walk about, and hold intercourse with the doctors or "mediums." Plungreen declared himself as one who was familiar with spirits, and said he had intercourse with them when he liked. He described them as like a blackfellow, but without any meat on their bones—only a skeleton, with eyes like stars, or like balls of fire, having hair and whiskers, and long ears sticking up like a horse's; they are all bone, and their hands or claws are sharp like talons. The blacks say they get their songs and dances from them, and that these spirits will come and dance with them before the medium or doctor. These spirits are said to be equally afraid of the blacks; they say one only comes up first, the rest hanging back or sitting down waiting—"wild fellow," as the blacks say—and afraid to come up close until persuaded. They sit on the trees, and when they overcome their fear the blacks hear them jumping down; after a time they come close up and dance and sing to the old men, to teach them, and they in their turn teach these dances and songs to the tribe.

The *Limbeen* carry a stick in the hand, always with a

the enemies' camp, the surprise—coming round the trees and looking in on the victims, pointing at them and making signs to one another—then the attack and killing, and victorious return. Some have comical allusions, and will be received with the same amount of fun and laughter at each performance.

Some corroborrees are learned from strange tribes, and may be sung in a language to which they are strangers, and tribes meet to practise and exchange dances and songs, into which they will enter with great interest. Most of them take a pride in the dance, and wish to appear to advantage in paint and step and time. No strict rule is followed as to the decorations for the dance; some use bars of white clay across the body, or down the legs, while others will be spotted with white. No indecent or lewd dances are practised by them. In all their dances they keep excellent time, and stop suddenly at the end. Two boomerangs are used by the men to keep time, and the women squat on the ground in front of the dancers, and beat time on something wrapped up in front of them or in their legs. The ground is cleared of leaves, and a few small fires are lighted in front.

Many tribes join together to hold a large ceremonial corroborry, for which they have been practising for some weeks, in which only a few may join; but in all cases, as soon as a white man appears, the spirit dies out of the dance, and one after another drops out and retires. They like to be exclusive in their dances and *Bora* ceremonies, and the presence of white men at them is never sought after, and only tolerated at any time for fear of being thought rude or uncivil.

Beliefs and Superstitions.

Much of the information which I am now going to note as to their beliefs and superstitions I obtained from an intelligent old aborigine, seemingly of about sixty years of age. He could not speak English, and his information was obtained by the interpretation of several black boys who spoke English, and who checked each other's accuracy. I am satisfied that his statements are perfectly aboriginal in everything, without any ideas derived from whites. His name was *Plungreen*, which signifies "swift footed," or "fast runner," having been in his younger days chased by the blacks in the Leichhardt a great distance, without being caught. He had only four toes on each foot, having cut off each small toe himself, as it hindered him in running by catching in the grass. He was a tall, straight, wiry-looking old man, and a truthful and faithful aborigine of the Mycoolon tribe.

These Gulf tribes believe in a life after death, in a place they call *Yalairy*. They believe in spirits which they call *Limbeen-jar-golong*. They believe in a spirit above who looks after them when they are up there after death. When a blackfellow dies, they think his spirit stays for a time about his grave, or comes round the camp, and after a time goes up by the Southern Cross, which is used as a ladder to the milky way (*Boonyo*). The latter is called the road to Yalairy, and the dead travel along this road towards the north-east till they arrive at that country. It is described as a good land, a nice place, full of beautiful shady trees, and with plenty of water, with all things to eat that they have here. There will be game to hunt, kangaroos, &c., and their dogs, and their women and children. They do not fix the place anywhere, only say it is far away somewhere, and they think among the stars. The custom of knocking out the two front teeth is connected with the entry into their heaven. If they have the two front teeth out they will have bright clear water to drink, and if not they will have only dirty or muddy water.

They believe that there are two large carpet snakes (*Kooremah*) of immense size, about forty miles long, either in Yalairy or on the road to it, which the dead blackfellows kill and eat, and which they believe are then reproduced; they fear these monsters.

Other spirits are the *Limbeen-jar-golong*, so called from the bark of a tree, as they are said to live inside the bark of a tree or on the limbs. These spirits are supposed to come out at night and walk about, and hold intercourse with the doctors or "mediums." Plungreen declared himself as one who was familiar with spirits, and said he had intercourse with them when he liked. He described them as like a blackfellow, but without any meat on their bones—only a skeleton, with eyes like stars, or like balls of fire, having hair and whiskers, and long ears sticking up like a horse's; they are all bone, and their hands or claws are sharp like talons. The blacks say they get their songs and dances from them, and that these spirits will come and dance with them before the medium or doctor. These spirits are said to be equally afraid of the blacks; they say one only comes up first, the rest hanging back or sitting down waiting—"wild fellow," as the blacks say—and afraid to come up close until persuaded. They sit on the trees, and when they overcome their fear the blacks hear them jumping down; after a time they come close up and dance and sing to the old men, to teach them, and they in their turn teach these dances and songs to the tribe.

The *Limbeen* carry a stick in the hand, always with a

crook at one end, and called *wommalongo*. They have women who are like themselves, and these carry a yam-stick. The blacks do not attribute much malice to these *Limbeen*, but say they are "good fellows," although they can work evil at times. They are, in fact, dead blackfellows, and grin and speak and eat food like blackfellows, and are often seen round old camping-places and old fires. The old headman, Plungreen, said that he saw them often, and talked long with them, and was not in the least afraid. Some of them are supposed to leave their graves and walk about at night and return at daylight. The spirits of hostile blacks, or tribes at a distance, are said to kill blacks with their sticks, or *wommalongo*, while the *Limbeen-jar-golong* of their own tribe are friendly.

The Yerrunthully tribe believe that there is a place they go to after death away among the stars, and the means by which they arrive there is by a rope, which they let go on reaching the top, and the falling of which is supposed by them to be indicated by the falling of a star; and the noise heard by them sometimes after a star has fallen (probably the bursting of a meteor or aerolite) is attributed by them to the breaking of the rope and its falling down. They believe that they will be blackfellows and gins in their new world; they expect to have plenty to eat, and have no dread of going there.

The Kombinegherry tribe, which inhabited the country on the Bellinger River in New South Wales, believe in a life after death; the dead blackfellow was supposed to go somewhere down below in the earth, but after that to ascend among the stars. They believe in a spirit which they call *Mango*, and in two superior spirits which exercise an influence on them and their destinies. One called *Coomboorah* is a spirit of goodwill towards blacks, and takes care of them, and tries to protect them from the influence of the other spirit, which is one of evil, and called *Tharragarry*, and works mischief on them. They are much afraid of this *Tharragarry*.

They call the sun *Burryoogan*, a female, while the moon is male, and called *Thineburra*. The Southern Cross is composed of five sisters in one family called *Thanikan*; Orion is three brothers named *Thallan*, *Bullen*, and *Goorgiddem*. The evening star is *Bungoogin*, and the morning star *Kiwah Kurrgwindah* (*Kiwah* is morning).

Among the superstitions of the Mycoolon is that known as *Beecharrah*. This is the being killed by an invisible spear, or, as they describe it, by the point of a spear which has been cut nearly through with a mussel-shell, a few inches from the point, by some one who wants to work mischief on another. The victim is supposed not to see his enemy approach, creeping from

tree to tree until he throws the fatal spear, which, breaking off at the cut, leaves the point behind, but without producing any wound, mark, or cut; no blood flows, the man feels none the worse, even does not know he is hurt. He goes on hunting, unconscious of harm, and returns to his camp in the evening as usual. During the night he becomes ill, is delirious or mad, runs about all night getting worse, and dies in the morning.

Thimmool is a pointed bone, which, being held over a blackfellow when he is asleep, or pointed at him, is supposed to cause sickness or death; it is not made to touch him, but only held close over him or near to him. They are much afraid of having the *Thimmool* pointed at them. It is said to be a human leg-bone, about 6 inches long, ground to a point.

The *Marro* is the pinion bone of a hawk, a double piece of bone in which hair of an enemy is fastened with wax. To work a charm on him a small circle of fire is made round it. It is then removed and laid in the sun; then put back again, just as they wish to make him only sick or to kill him. When they think they have done enough, and are satisfied, they place the *Marro* in water, which removes the charm.

Wingo is a superstition they have that with a rope made out of fibre or bark they can partially choke a blackfellow by putting it round his neck at night when he is asleep, without waking him, and his enemy then takes out his caul-fat from under his short rib, leaving no mark or wound, nor any blood flowing. His inside being carefully tied up with a string he is left alone after having this mischief worked upon him, the skin being carefully replaced so as to leave no mark. The victim on awakening feels no inconvenience, but by-and-by, perhaps months after while hunting, perhaps when following an opossum up a tree, he jumps down to catch him, and suddenly alighting on the ground, or perhaps even during some violent exercise, he feels the string break in his inside. "Hallo," he says, "some one has tied me up inside with string!" He then goes home to his camp and dies at once. The fat that is abstracted is used to catch fish with, and it is said to cause great luck to the fisher, the fish being easily caught with it for a bait.

Myths and Knowledge of the Stars.

As I have said, the milky way is called *Boonyo*, the road to Yalairy, or Heaven. The Pleiades are called *Numkine* (a maid, or virgin). The two black clouds near the Southern Cross are called *Junkerberry*, the emu. The two black spaces seen in the milky way (the absence of nebulæ near Magellan's cloud) are two old blackfellows that were speared at *Bora* time near

the Taldora, on the Saxby River, long before the present blackfellows came to this part of the country, by a race who owned this country then, a very long time ago—so long that they have forgotten nearly all about it. They were very old men when they were translated, but became alive upon going up where they are now. The evening star is called *Yumby*, the dog; the morning star *Yaboroo*, a bitch; Orion's belt is called *Marbarungal*, a blackfellow; and a falling star is called *Jinbabora;* when a falling star bursts or makes a loud report, as is sometimes heard by them, the Mycoolon call it *Goonbor*, and say that the blackfellows are playing at carrying each other, and when one is let fall it makes the noise they hear. They say that the gum which grows on the whitewood tree (*Atalaya hemiglauca*), and in the gidya (*Acacia hemilaphylla*) and other Acacias, and which they are fond of eating, is produced by the falling stars, which strike the tree and go into it, afterwards coming out in the shape of gum. Their idea of the setting sun and of the movements of the visible solar system is, that the sun and moon and stars go underneath the earth through a hole underground, and their rising is their coming out of the hole at the other side. They believe that there is a great fire under the earth.

Death caused by a stone falling from the clouds, or a falling star, is said to be a penalty incurred by youths for eating forbidden food when young. The Mycoolon have no name for a comet, but are afraid of it. They wonder among themselves, and talk at night about these things, and the past existence of their race, and how they came here. They think there were other blackfellows here before them, and connect their history, past, present, and future, with the stars. All the blacks who have died are among the stars, and the old man Plungreen, when asked which way they went, motioned with his hand towards the north or north-east, and said that they went up first by the Southern Cross to *Boonyo*, the milky way.

The mountains and shadows seen in the moon are by them said to be scars on a big blackfellow, who killed a lot of their people on the Saxby River many years ago. He was killed in return and burnt, and these shadows are shown as the marks of the fire in his body.

Bora Ceremonies.

The Mycoolon form large stake yards at their *Bora* times, oval-shaped, or rather egg-shaped, open at the short end, and the shortest stakes there; at the closed and widest end the stakes are from 10 to 12 feet high, and as stout as a man's leg. The enclosure is 30 to 40 feet long, and 15 feet wide, and is surrounded by a ring of the earth heaped up.

The humming-stick, called *Mobolah*, used at *Bora* times only, is a flat piece of wood, 9 inches long and 2 inches broad, and thin with a hole bored in one end; it is swung round the head tied to another stick to warn the gins not to approach; no woman is ever to see it, or any uninitiated youth. At the ceremony the boy's arms are tied tightly with a string till they swell, and he is then kept two days without anything to eat; water is given, but no food. Among other rites practised is one of being covered with blood taken from the arms of all the black-fellows around. The youth is forbidden to eat of eaglehawk and its young, native companion and its young, some snakes, turtles, ant-eaters, and emu eggs.

Adjoining the Mygoodano tribe of the Cloncurry is a tribe called "Kalkadoona," members of which occasionally visit the former, coming from a long way to the south. There is not much known of them. They call themselves "Kalkadoon," in a long-drawn, whining tone of voice. They have a peculiar custom at their *Bora* time, and some of the Mygoodano are said to practise the same rites, but it is not the rule among them. At the *Bora* initiations the grown-up youths are held forcibly by a good many blacks and the urethra is slit along with a flint, not a mussel-shell, and when healed afterwards the urethra itself is taken out,[1] and it remains open ever after. The slit in some cases extends only a short distance from the scrotum, in others it extends the whole way from it to the glans penis. A similar custom can be traced from the Cloncurry River to the Great Australian Bight in the south. The females in some south-western tribes are operated on in some manner to prevent conception. These women have a mark or scar on the side above the hip where an incision has been made, and it is supposed that the ovary has been taken out, as in the operation of spaying. In other tribes the clitoris is cut, or subject to some operation by which it is supposed breeding is checked. These women go about with the other women as usual.

In the Bellinger River tribe the humming instrument is called *yeemboomul*, and the preparations for the *Bora* ceremonies last a long time, over a month. The ring for the *Bora* is called *geebarah*, and is made some distance from the camp; no gins are allowed near it on any account. The earth is banked up in a circle, and the inside made smooth and flat. The trees all round are marked with various signs. The lads are made to sit still for a long time with their eyes cast down; they are not

[1] In some only is the canal cut out, but I have been assured by competent witnesses that such is really done. The penis of those operated on hangs on the purse, and is always very disagreeable to look at, being moist and slimy with whitish mucus.—E. P.

allowed to look about, or give their attention to anything while the elders are preparing the final rites and giving them their lessons. The boys are only led to the ring and shown it, and all the signs explained to them at the same time. The *yeemboomul* is only sounded in the ring to warn the females from approaching, and at all times when it is sounded they are not to present themselves. It is left inside the ring during the day, and it is sounded at morning, noon, and night, and when all the ceremony is over they burn it. Any blackfellow coming inside the ring may sound the *yeemboomul*, but no one unless initiated is to use it. A fire is kept alight inside the ring, and each blackfellow has to make water in the fire.

A string is tied tightly round the arm of the youth, and a tooth is knocked out in front—sometimes two, but not invariably. The tooth is knocked out by placing a stick in the tooth and driving it inwards by a sudden blow from another stick. The tooth is spat out, but all the blood flowing from the wound is swallowed. The lads get all their instruction after their initiation, and being admitted into the ranks of men. Each lad is attended by one of the elders, who instructs him every evening in his duties, and gives him advice to regulate his conduct through life—advice given in so kindly, fatherly, and impressive a manner as often to soften the heart and draw tears from the youth. He is told to conduct himself discreetly towards women, to restrict himself to the class which his name confines him to, and not to look after another's gin; that if he does take another gin when young who belongs to another, he is to give her up without any fighting; not to take advantage of a gin if he finds her alone; that he is to be silent and not given to quarrelling. The secrets of the tribe are imparted to him at this time. These instructions are repeated every evening while the *Bora* ceremony lasts, and form the principal part of it. He is led to consider himself responsible for good conduct to the tribe, its ancient traditions, and its elders.

At these ceremonies, as in those of many other tribes, a quartz crystal is used. It is carefully wrapped up and no woman is allowed to look at it. It belongs to the headman, or doctor, or spirit-medium. With this tribe (Kombinegherry) it is called *koree*, and is used sometimes to buy a gin with from her father or father's brother. They think it is obtained sometimes from the inside of a blackfellow when sucked or drawn out by the doctor. The large ones are obtained by some blacks who go in quest of them to the mountains. They stay away for months seeking for them, and go through much ceremony and fasting and privations, in consequence of which the stones are supposed to come to them at night while asleep. The smaller crystals

are swallowed by the boys at *Bora* time. The large rock-crystal is venerated by most blacks, and is regarded with superstitious secrecy; it is the symbol of their Great Spirit.

There is a lesser ceremony at the Bellinger River which is said to lead up to the one I have described. It is called *Murwin*, and the place of ceremony has no ring, but is made of forks with long poles resting on them, forming an enclosed space.

Rain-Making.

Rain, it is supposed, can be brought or made in various ways, and the belief in this power is indeed universal in Australia. The blacks of the Mycoolon, Myappe, and Mygoodano tribes are full of faith in the power of producing rain or wind or storms. The Myappe steep the entrails of opossums in water for some days, and take them out, when decomposing, to produce rain. They also skin a native cat, and hang it on a tree for the same end. The Mycoolon doctors or elders are supposed to be able, by gathering up dust and throwing it about, and blowing with the breath, to be able to bring rain.

There is a belief strong in most blacks that some places are to be avoided on account of being haunted by some evil being; some places, as where blacks have died or been killed, they cannot be persuaded to visit.

In Wide Bay there is a place below the crossing of the Burnett River, a dark deep hole, where the scrub comes down to the edge of the water. The blacks used to say that something lived in the water there that would catch them if they went into it. Mount Canonomun, a high range about fifty miles from Maryborough, on the Gayndah road, is a place into which blacks will not go for fear of what they call in their English "devil-devil." It is said that in the early days of the Colony a lot of blacks were shot on the top of the mountain. There is a round prominent peak between Maryborough and Brisbane, near the coast, and visible from passing steamers, called by the natives "Boppel." The natives say that an old blackfellow lives on it who has the power of making rain, thunder, and lightning, and no one will venture near it.

On the Canobie run there is a lagoon of water fed by a soda spring, and surrounded with tall ti-trees; the lagoon is deep and clear, and the blacks refuse to go in or near it even, but the reason really is a superstitious one for keeping away from it.

Burials and Mourning.

It has been supposed that among their methods of disposing of the dead the Gulf tribes used cremation; certainly some

graves have been seen where there were only a few burnt bones and ashes of a fire. They buried their dead usually in the ground, but when they ate them they buried the bones or burned them, and this may account for the appearance of so few relics of the dead in some of the graves. When buried whole, some are laid in the grave full length, wrapped round with ti-tree bark and twine very tightly, the grave being dug about 2 feet deep, and a fire made in it before the body is put in, a fire being kept burning near the edge on the surface. When putting a body in a hollow tree, they place it upright, having cut a piece out of the tree shell, which they replace and fasten up very securely.

In the Wide Bay tribe the dead are sometimes buried in the ground, at others laid on a platform 6 to 8 feet high, and covered with bark and boughs. When buried, the corpse is often placed in a sitting posture, with a stick passed through under the knees and fastened at either side. In some cases they are very particular that no earth shall touch the body, and make a stage above the body of bark and sticks, on which they pile the earth. Trees are marked sometimes where the body is buried, and the earth raised up over the spot. A woman sometimes carries the bones of her child for months wrapped up in a bag at her back.

At Wollongong, in New South Wales, there was many years ago one spot to which the blacks resorted from all parts of the district to bury their dead, covering the graves with piles of sticks. There were over fifty buried in one spot at that place. They always put their dead out of sight in that tribe as soon as they could. They sang the death-song frequently for weeks after a death, and testified their grief by many sorrowful expressions, also cutting the head to cause it to bleed. The women mourned in concert, and showed their grief by outward tokens, as by putting mud on their heads and all over the body, frequently awakening in the night to sing a mournful song, and cry for the dead. In the case of a widow mourning for her blackfellow, she abstained from eating opossum, ducks, turkey, and emu, only eating snake, iguana, and fish, and she continued this for three floods. It was the husband's brother who took the widow to wife.

In the Bellinger River tribe, *Thooloor* means mourning for the dead, which is shown by putting charcoal on the face, and round the eyes, and they are in the habit also of cutting their heads with tomahawks till blood is drawn. A widow abstains from eating any animal that runs on the ground, such as kangaroo, wallaby, &c., for about two years. She eats whatever climbs trees, and that only.

They never mention the name of a blackfellow after his death, nor any place called by the same name.

I may note, finally, that in some of the tribes the females of any animals are not eaten by widows.

Healing Craft.

Among the northern tribes many devices and charms are resorted to in the cases of pains and sickness. The doctors are men who, it is supposed, possess great powers of healing, some of which they obtain from the spirits. They use stones and crystals to put away sickness from any one, and sometimes they bandage the afflicted part with string tightly until no part of the skin is visible. One common plan of alleviating pain is by bleeding, supposing that the pain comes away with the blood. For this minute cuts are made through the skin with pieces of broken flint, or the edge of a broken mussel-shell, over the part affected, and the blood is wiped off with a stick. Sometimes the doctor ties a string from the sick place, say the chest, and rubs the end of it across his gums, spitting into a *kooliman* of water, and passing the string through also; he then points to the blood in the water as evidence of his skill in drawing it from the sick person. Stones are sucked out with the mouth, and exhibited as having been taken from the body.

A good number of plants are used for sickness as drinks, and for external application. A broken arm is cured with splints made of bark and wound round tightly. Snake bite is cured by scarifying and sucking the wound, and by then using a poultice of box bark bruised and heated.

Class Systems.

There is no well-authenticated instance with which I am acquainted of any Australian blacks who were without one form or another of divisions into classes; where such divisions have been believed to be absent it has been from the want of their being discovered by the observer, and not from their non-existence. The blacks are born into these divisions, and are reared up with the idea instilled into them that it is necessary for them to observe as sacred the class rules; indeed, to many it would be like sacrilege to marry contrary to these established rules. They do not give any traditions as to when these rules were first introduced, the fact being that they have carried the idea of the divisions with them through all their wanderings since they first settled in Australia. It seems strange, but is perhaps not unaccountable, that the classes and their divisions

found in all the tribes correspond with each other, although differing in name or in totem, over localities separated from each other by hundreds of miles.

Like all other Australian tribes, those of the Gulf of Carpentaria are divided into separate divisions. Taking the Mycoolon tribe as an instance, adjoining tribes have the same class names, and have totems having the same meaning. Tribes at a greater distance have a different set of divisions, with distinguishing totems for each class. In cases of distant tribes it can be shown that the class divisions correspond with each other, as, for instance, in the class divisions of the Flinders River and Mitchell River tribes; and these tribes are separated by four hundred miles of country, and by many intervening tribes. But for all that, class corresponds to class in fact, and in meaning, and in privileges, although the name may be quite different, and the totems of each dissimilar. Some tribes have males and females of the same name, while others have separate class names for males and females.

It is well known now that from Moreton Bay to the shores of the Gulf of Carpentaria, a distance of over fifteen hundred miles in length, and for seven hundred miles inland, or even to a much greater distance, the blacks are divided into divisions for the purpose of preventing too close connections in marriage, and that all these divisions correspond with each other. Thus a blackfellow from one of the most southern tribes could easily tell from what division he could obtain a wife if he were to visit a tribe in the far north, if such a visit could be effected, and he were received by them. Since the advent of the white race these regulations have been broken down and greatly neglected and lost sight of, excepting where a tribe has been living in the bush, free from the influence of civilisation.

All nature is also divided into class names, and said to be male and female. The sun and moon and stars are said to be men and women, and to belong to classes just as the blacks themselves.

They have a great reverence for the particular animal symbolising their respective classes, and if any one were to kill, say, a bird belonging to such a division in the sight of the bearer of its family name, he might be heard to say, "*What for you kill that fellow? that my father!*" or "*That brother belonging to me you have killed; why did you do it?*"

They often addressed each other by their respective class names, except aged men, whom they generally addressed as "father," or "old man."

The relationships of the natives are founded on these laws: they call their father's brother the same as father, and mother's sister the same as mother. Our ideas of kinship are so different

to theirs that calling them uncles or aunts or cousins or sisters or brothers does not convey any such meaning to them as it does to us, for they regard as brothers all those who belong to the same class or division as themselves; and among all blacks they discover some degree of affinity. They have a clear enough idea of their relationships; the fault seems to lie with us who do not comprehend theirs. Being founded on such a totally different system to ours, the individual relationship is, I believe, ignored for the sake of the class system. They recognise its relationships; hundreds of times a black boy has said, "Such and such a one is my brother," when I knew that he was not a brother, as we call such a relationship, and the same with father and mother. A blackfellow will say, and will be correct in saying, "So many are my fathers," or "So many mothers I have;" he should call them uncles or aunts; but brought up under the influence of their class system of relationships, it is as difficult for them to understand our system as it is for us to get at the secret of theirs. But there can be little doubt but that all their relationships are founded on the class systems or divisions, and they recognise such relationships, and call each other by them. From their earliest youth they comprehend such relationships, and know no other.

To marry a sister is looked upon as a crime; such a case is not known among them; they cannot conceive such a thing possible. Young people are affianced when very young, and they often elope and stay away for some time. A woman captured, or taken in war, would not be kept unless belonging to the class into which her captor could marry. Sometimes a woman was obtained by asking her father for her. Seldom was a woman taken by violence, or knocked on the head and dragged away, as has been said very often. In the Kombinegherry tribe at the Bellinger River, in New South Wales, a wife was obtained from her father by his consent. The son-in-law never looked at his mother-in-law, and always avoided her presence in the Gulf tribes, but the father-in-law did not come under the same restriction. They made raids into each other's territories to steal gins, going sometimes long distances for them.

I now give the class systems of a number of tribes, including a few which I have quoted for comparison.

The Yerrunthully tribe has classes which have male and female members in one name. This tribe is situated on the heads of the Flinders River, near Hughenden, a post and telegraph town west of Townsville. My informant was of this tribe; and of the class name "Bunbury."

Four classes belong to this tribe, namely:—

Male	Marries	Children are
Bunbury	Woonco	Coobaroo.
Coobaroo	Koorgielah	Bunbury.
Koorgielah	Coobaroo	Woonco.
Woonco	Bunbury	Koorgielah.

Each boy and girl in the tribe is born under one of these four divisions, and is subjected to the laws connected with the tribal marriages. As each class name has a representative in other tribes they would be subject there to the same regulations.

These classes are represented by totems, which are different to those of the Mycoolon tribe lower down the same river.

They are four:—

Bunbury	Carpet snake	*Tharoona.*
Coobaroo	Brown snake	*Warrineyah.*
	Emu	*Goolburry.*
Koorgielah	Plain turkey	*Bergamo.*
	Native dog	*Cubburah.*
Woonco	Whistling duck	*Chewelah.*

This tribe has a general name for snakes (*Moondah*). This snake *Warrineyah* is small, with a small head, and is said to be very deadly. It is by this tribe that the inner bark of the Hooded boxtree (*Eucalyptus microtheca*) is used as a cure for snake-bite, by being pounded fine and applied as a poultice to the part bitten, after it has been scarified and bled.

The class names of the Mycoolon represent those of several adjoining and allied tribes. The Mycoolon tribe is about one hundred miles south of Normanton, a post and telegraph town on the Norman River, at the Gulf of Carpentaria. This tribe is divided into four intermarrying classes, as follows:—

Male	Marries	Children are
Marringo ..	Goothamungo ..	Bathingo and Munjingo.
Yowingo ..	Munjingo	Jimalingo and Goothamungo.
Bathingo ..	Carburungo	Marringo and Ngarran-ngungo.
Jimalingo ..	Ngarran-ngungo ..	Yowingo and Carburungo.

A blackfellow can only marry into one class, namely, that opposite to his name; the other three are forbidden to him strictly. The descent seems to be reckoned through the mother, for the child takes its name, not from its own mother's class, but from the grandmother's class. If we take Goothamungo as an example, her daughter will be "Munjingo" (having of course also a personal name as well); Munjingo's husband must be "Yowingo," but her daughter takes the class name of her grandmother "Goothamungo," her son being "Ismalingo." So that the name comes through the mother, the father's class name having no influence in the matter. The class name always goes back to that of the grandmother on the female side. Goothamungo's daughter is always Munjingo, and Munjingo's daughter is always Goothamungo, and so on in succeeding generations. The father might possibly be of a name representing the proper class, but from a far away tribe, for the class names correspond in different tribes in class though not in name; still the children take their name through the mother in this tribe. It is, however, possible for descent to be through the father; it is said to be so, and that this classification shows that the system in this tribe is an advance upon the simpler Kamilaroi system. This must be left for future inquiries to show.

No inquiries have yet elicited the fact that there are two primary classes to these four minor divisions, yet they may be discovered in the future inquiries which I shall carry on.

Each class name has a symbol or totem in this tribe, or animal representing that class. Each young lad is strictly forbidden to eat of that animal or bird which belongs to his respective class, for it is his brother.

The classes are represented as follows:—

Marringo..	Black duck	*Karrabah.*
Yowingo	Plain turkey	*Thoorna.*
	Eaglehawk	*Cooreythilla.*
Bathingo.. ..	Carpet snake	*Koorema.*
	Iguana	*Yangalah.*
Jimalingo	Whistling duck	*Wallathoo.*

On the Leichhardt River, Jimalingo is represented by Wootharoo, whose totem is catfish.

The following are the class names and totems of the Koogobathy tribe, situated on the Mitchell River, sixty miles from Palmersville. These class divisions are also used by an adjoining tribe.

Male	Marries	Children are
Jury	Barry	Mungilly.
Mungilly	Ararey	Jury.
Ararey	Mungilly	Barry.
Barry	Jury	Ararey.

The totems belonging to these classes are as follows:—

Jury	Native companion	*Ingibba.*
Mungilly	Grass (*Panicum*)	*Ookin.*
Ararey	Nonda fruit (*Parinarium nonda*)	*Yuley.*
Barry	Yam (*Dioscorea sativa*) ..	*Karro*

These class names represent those on the Flinders River by some relationships which is unknown to me. I subjoin them and their representatives.

Jury	is the same as	Marringo and Ngarran-ngungo.
Mungilly	„ „	Yowingo and Carburungo.
Ararey	„ „	Bathingo and Munjingo.
Barry	„ „	Jimalingo and Goothamungo.

On the Bellinger River, on the East Coast of New South Wales, there is a tribe named Kombinegherry, having the following classes. My informant, one of this tribe and of the class Kurbo, knew of no totem names associated with the classes. The tribal name is that of the language.

Male	Marries	Children are
Kurbo	Wirrikin	Wirro and Wongan.
Wombo	Kooran	Marro and Kurgan.
Marro	Wongan	Wombo and Wirrikin.
Wirro	Kurgan	Kurbo and Kooran.

The subjoined classes are those of a tribe near Rockhampton. I have found them at Wide Bay, a distance of two hundred and

fifty miles to the south, and they occur with some little variations at Moreton Bay, still further to the south.

Male	Marries	Children are
Balcoin	Therwine	Bundah.
Therwine	Balcoin	Baring.
Bundah	Baring	Balcoin.
Baring..	Bundah	Therwine.

A peculiarity exists in this tribe, namely, that there is a name for each of the four families thus formed.

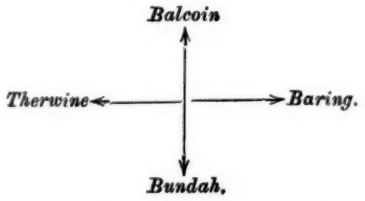
(i) *Balcoin* (man), *Therwine* (woman), *Bundah* (child) } = *Yorome.*

(ii) *Therwine* (man), *Balcoin* (woman), *Baring* (child) } = *Avong.*

(iii) *Bundah* (man), *Baring* (woman), *Balcoin* (child) } = *Malaume.*

(iv) *Baring* (man), *Bundah* (woman), *Therwine* (child) } = *Goomee.*

The blacks understand these relationships well, and exemplify them with two crossed sticks, thus:—[1]



In this the child always takes its name from that opposite to its father's name. For instance, if the father is Bundah, the child must be Balcoin, and so on.

I find in Dr. Lang's work on Queensland the subjoined variations of this set of class names, which I extract for comparison; they extend from Moreton Bay and Frazer's Island in Wide Bay. It will be noted that the female class name is formed by the addition of *un* to the male name, and in this there is a resemblance to the termination of the female names of the Kombingherry classes.

[1] I am indebted for this single instance to Mr. Jocelyn Brooke, Sub-Inspector of Queensland Native Police.

Male	Female	Are
Barang	Barangun	Brother and sister.
Bundar	Bundarion	„ „
Bandure	Bandurun	„ „
Derwain	Derwaingun	„ „

I find that at Mackay the class names are as follows, corresponding to those of Rockhampton:—

Yungaroo to Bundah.
Wootaroo „ Baring.
Gootela „ Balcoin.
Gooberoo „ Therwine.

To the westward of the Balonne River the classes are:—

Male	Female	Are
Urgilla	Urgillagun	Brother and sister.
Obur	Oburagun	„ „
Unburri	Unburrigun	„ „
Wongo	Wongogun	„ „

Finally, over a large extent of country still further to the south the class names are:—

Male	Female	Are
Ippai	Ippata	Brother and sister.
Kubbi	Kapota	„ „
Kumbo	Buta	„ „
Murri	Mata	„ „

Ippai marries Kopola; Murri marries Buta; Kubbi marries Ippata; Kumbo marries Mata. Though the names differ, the classification, and the laws formed upon it, are similar nearly everywhere, from New South Wales to the Gulf of Carpentaria.

Languages.

The common origin of the languages of the Australian natives is proved by the similarity of sound and structure in widely different parts of the continent, by the recurrence of the same word having the same meaning many hundreds of miles apart, and by personal names occurring in the same way. The words *Boree* and *Coogah* mean "fire" and "water" on the Lower Warrego, and are found with the same significance 1,400 miles distant, on the Mitchell River. The word *Cammo*, for "water," is used at Bourke on the Darling, on the Burdekin River, and at the head of the Flinders, in North Queensland; changing in many other localities to *Kam*. *Moloo* and *Yika*, which mean "nose" and "sun," are used both at Bourke in New South Wales, and at Maryborough in Queensland; at the same places *Tinnah* means "foot," and down the Lower Flinders, *Jannah*, a nearly similar word, is used for that member. The word for "eye," with slight changes, *mil*, *mel*, *mille*, &c., is very universal all through Queensland. The word for the number "two" is similar in scores of places far removed from each other.

In spreading over the country the blacks must have carried these and many other words with them, which they still retained in spite of the numerous causes which must have arisen for changing their language, as they separated, and became strangers to each other.

A blackfellow from one part of Australia will learn the language of a strange tribe in a few weeks, which would take a white man years to acquire, even if he ever mastered it.

The languages of some of the tribes near the Gulf of Carpentaria are, in fact, only varieties of one speech or tongue, common to many tribes spread over wide tracks, and yet in small adjoining tribes the commonest words are different.

Among the Gulf tribes the highest numeral is four, or at the most five. The terms for "heat" and "cold" are those which are used to indicate summer from winter. They have a name common to both grass and timber trees. They have neither singular nor plural number, nor does the noun change.

One difficulty met with in comparing these languages is, that white men do not always catch the sounds of the words in exactly the same way from blacks. *T* becomes *th*, or *d*, and the sound *ng* often becomes *k*. The knocking out of the front teeth affects the pronunciation of their words, the tongue in some words protruding through the opening. This might even in time help to change a language.

Many of the verbs in the Mycoolon dialect end in *i*; for instance:—

myi = to speak.	*beemi* = to swim.
walli = to climb.	*wobbi* = to hunt.
bunki = to run.	*lowi* = to throw.
gunthi = to grind.	*warri* = to dig.
wanjili = to sleep.	*thewi* = to break.

The pronouns are in the same dialect:—

ngice = I.	*unaira* = we.
yundo = thou.	*yundo*, or *yarra* (plural) = you or ye.
nullo = he.	*thanna* = they.

The conjugation of the verbs was taken down from an intelligent black boy of the Myappe tribe, who spoke good English, and whose language was similar to that of the Mycoolon.

Walli = to climb (a tree).

ngie walli = I climb.	*unaira walli* = we climb.
yundo walla = thou climbest.	*yundo walla* = you climb.
nullo wallan = he climbs.	*thanna wallan* = they climb.

For the past tense *wil* is prefixed to *wallun*:—

wil ngie wallun = I did climb, or I climbed.
wil yundo wallun = thou didst climb.
wil nullo wallun = he did climb, or climbed.
wil unaira wallun = we did climb.
wil yundo wallun = you did climb.
wil thanna wallun = they did climb.
Imperative, *yundo walla* = you climb, or climb.

Beemi = to swim.

ngie beemi = I swim.	*unaira beemi* = we swim.
yundo beema = thou swimmest.	*yundo beema* = you swim.
nullo beeman = he swims.	*thanna beeman* = they swim.

For the past tense with the prefix *wil*:—

wil ngie beemun = I swam, or did swim.
wil yundo beemun = thou didst swim.
wil nullo beemun = he swam, or did swim.
wil unaira beemun = we swam, or did swim.
wil yarra beemun = you swam, or did swim.
wil thanna beemun = they swam, or did swim.

Beeme is used interrogatively. Imperative, as—

yundo beema = swim, or you swim.

The verbs ending in *i* are construed alike: *walli, walla, wallun; bunki, bunka, bunkun; beemi, beema, beemun;* and the prefix *wil* to the terminal *un* forms the past tense; but sometimes an exception is made, as, for instance, *wobbi* = to hunt: they say *wobbi, wobba, wobbe,* or *lowi, lowa, lowe,* or *lowen.* This form of

conjugation seems to be that used by the tribes on the Flinders River.

There is a difference in the verbs of these tribes and those of the Kombinegherry tribe at the Bellinger River, in New South Wales.

The following I obtained from a black man of the class "Kurbo," of the Kombinegherry tribe. This man was most intelligent and was in receipt of good wages as a stock-keeper.

The personal pronouns are :—

ngai	= I.	*ngū-ūki*	= we.
eenda	= thou.	*eenda*	= you.
yurrun, or *illingitto*	= he.	*woomarka*	= they.

Kieeng = to talk.

ngai kieeng	= I talk.	*ngū-ūki kieeng*	= we talk.
eenda kieeng	= thou talkest.	*eenda kieeng*	= you talk.
yurrun kieeng	= he talks.	*woomarka kieeng*	= they talk.

The future is formed thus :—

ngai kiyu	= I will talk.	*ngū-ūki kiyu*	= we will talk.
eenda kiyu	= thou wilt talk.	*eenda kiyu*	= you will talk.
yurrun kiyu	= he will talk.	*woomarka kiyu*	= they will talk.

The addition of the syllable *uki*, or of *unguki*, forms the past tense :—

ngai kiūnguki	= I did talk, or I have talked.
eenda kiūnguki	= thou didst talk, or thou hast talked.
yurrun kiūnguki	= he did talk, or he had talked.
ngūuki kiūnguki	= we did talk, or we have talked.
eenda kiūnguki	= you did talk, or you have talked.
woomarka kiūnguki	= they did talk, or they have talked.

Imperative :—*kiu* = talk ; *eenda* = you talk, or *kiu kiu*.

Bindima = to throw.

ngai bindima = I throw ; *ngūuki bindima* = we throw ; and so on.

ngai, or *ngaitcha bindima*	= I will throw, &c.
ngai, or *ngaitcha bindimunuki*	= we have been throwing.
eenda bindamunuki	= thou throwest, or hast been throwing.
yurrun, or *illiningitto bindimunuki*	= he threw, or has been throwing.
ngūuki bindimunuki	= we threw, or have been throwing.
eenda bindimunuki	= you threw, or have been throwing.
woomarka bindimunuki	= they threw, or have been throwing.

Other examples are :—

ngai karmugon	= I break.
ngai korm-ngonuki	= I did break, or I broke.

When talking amongst themselves excitedly or angrily, the flow of language of the blacks is very copious, the words running into each other, or being cut short, at the highest pitch of their voices.

The language of abuse towards one another is confined to personal allusions. The old women are adepts at it, and screech out their spiteful insinuations at a furious rate. Being translated they would mean: "Your eye is no good," or "Blind eye," or "Smoky eye;" "Your ear cannot hear, you are deaf; your belly stinks; your liver is rotten; your inside is decayed; you are lascivious; you are a prostitute;" and many other viler terms are used.

Many of the northern tribes have a sign language made by motions of the hands.

Plant Knowledge.

The blacks appear to have possessed a considerable knowledge of indigenous plants. Some of them had to be prepared by fire and water and many processes before being fit to eat, having some very deleterious, if not poisonous, properties, which could only be overcome by such means. And they had much experience in plants used for poisoning fish, and also for healing virtues and medicinal purposes. They were acquainted with the times of flowering and seeding of most plants, and their general knowledge of natural history was very accurate. This knowledge could have been obtained only by close observation, and generations of experience. In many parts of Australia this knowledge has died out with the blacks, and it is only in far away places like Northern Queensland, where civilisation has not yet displaced the aboriginal inhabitants, that any correct information can be obtained as to the plants which were in daily use by them. They were never in want of some vegetable diet, and in some seasons of the year fruit and roots were their principal food. In some places they stored roots or seeds for future use; and in hardening wood for spears they were acquainted with the value of fire as an agent. Their material for fibre or cordage was always plentiful, and they sometimes stained it red or brown, to make a pattern in colours for their bags, which were very strong and lasting.

Plants used by the Natives of the Mitchell and Flinders Rivers for Food Purposes.

1. *Typhonium augustilobium* (*Aroideæ*).—Native name on the Mitchell, *Wanjallo*. A pink tuber of large size, with long fleshy leaves; grows on river flats on the Mitchell, in good soil. The bulbs are bruised with a stone and roasted, then pounded for some time, and roasted several times before eating.

2. *Dioscorea transversa* (*Dioscorideæ*).—A yam of large size, something like a sweet potato, growing in scrubs in the Cook district, about King's Plains. The roots grow among rocks in

the crevices where rich soil is found; Normanby and Mitchell Rivers. The vine climbs to the tops of the trees in the scrubs, with a thin, brown-papery-like seed, which gathers in large clusters, and is conspicuous at a distance. The roots are dug up and eaten raw; of a sweet, juicy nature.

3. *Hibiscus divaricatus* (*Malvaceæ*). F. Aus.—Native name on Cloncurry, *Ngar-golly;* Mitchell, *Ithnee.* Annual shrub from 6 to 9 feet high, called wild rosella: soft prickles, stem rough and hairy. Two kinds of leaves grow on the same shrub. One is long, narrow, lance-shaped, with serrated edges; the other broad at the base, and triangular. Flowers large and red, opening during the evening. Grows on the sandy banks of rivers, Cloncurry. The young buds are eaten raw; also the root is dug up; the thick skin being peeled is eaten raw or uncooked; it has a pleasant juicy taste.

4. *Cynanchum floribundum* (*Asclepiadaceæ*).—Native name on Cloncurry, *Thooromia.* An annual plant, with erect woody stems 2 or 3 feet high, on the sandy banks of the Cloncurry River. Leaves lanceolate, and small insignificant flowers. Pods 1½ inch long, tapering to a point, growing in pairs, with the flat sides opposite; full of cotton and small seeds. The young leaves and shoots are eaten, and pods before turning yellow, uncooked. They are said to fatten the blacks that live much on them. Plant full of milky juice.

5. *Physalis minima* (*Solanaceæ*). — Native name on the Cloncurry, *Neen-Gwan.* A native gooseberry; annual; about 2 feet high; bushy, soft, acute leaf, and a small white flower; stems reddish, triangular; grows on the Upper Cloncurry. Fruit yellow when ripe, in an inflated calyx similar to Cape gooseberry, sweet tasted, grows in great quantities, and eaten uncooked.

6. *Solanum esuriale* (*Solanaceæ*).—Native name on Cloncurry, *Oondoroo.* An annual herb about 1 foot high, found among the grass on all the plain country on the Flinders. A few pale green leaves, soft tomentose, alternate; erect stem. Fruit the size of a large marble, spherical and yellow when ripe; eaten both raw and roasted. Sir Thomas Mitchell mentions this plant.

7. *Maba humilis* (*Ebenaceæ*). R. Bn.—Native name on Cloncurry, *Thankoin* and *Mogiore.* A dark green shady tree, 20 to 25 feet high, grows in the sandy forest country, or along the banks of creeks. Leaves smooth, alternate, oval, 1 inch long; yellow fruit, ¾ inch long, oblong or egg-shaped, adherent to the calyx, and very plentiful; eaten raw.

8. *Capparis Mitchellii* (*Capparideæ*). Lindley.—Native name on the Cloncurry, *Karn-doo-thal.* A dark green shrub growing on the plains and billybongs of the Flinders, 12 to 15 feet high.

Crooked and rough stem; bark fissured longitudinally; large white flowers. Fruit 2 to 3 inches in diameter, with a rough exterior rind; eaten raw when soft and ripe. Called the large pomegranate by the settlers.

9. *Capparis spinosa, var. nummularia.* F. v. M.—Native name on Cloncurry, *Longullah* and *Mijar.* A spreading prickly shrub, 3 to 4 feet high; all over the Cloncurry country. Round alternate leaves, 1 inch broad, with two thorns on each side, recurved, branchlets axillary. Flowers large and showy, mostly white; sometimes pink on the same tree. Fruit yellow when ripe, larger than a pigeon's egg; eaten raw. Grows round yards and habitations freely.

10. *Capparis lasiantha.* R. Bn.—Native name on the Cloncurry, *Wyjulah* or *Thulla-Kurbin.* A woody climber, with a stem sometimes 3 or 4 inches in diameter, smaller branches with recurved spines. Leaves oval, acute, alternate; thick and fleshy tomentose, 2 inches long. Small white flower. Fruit splits lengthways when ripe, turning yellow, exposing the numerous black seeds embedded in a bluish pulp, sweet to the taste. The outer rind bitter and hot. Very plentiful on the plains after the wet season on both the Cloncurry and Mitchell. Eaten uncooked.

11. *Capparis lucida.* R. Bn.—Native name on the Cloncurry, *Thoogeer.* The small pomegranate; a shrub with broad dark green leaves, thick, on long petioles; buds erect at first, then drooping, growing singly. Small round fruit, eaten raw. Grows on Lynd and Cloncurry Rivers.

12. *Capparis nobilis.* F. v. M.—Small scrub tree; prickly. Leaves oval, oblong. Flowers white. Fruit globular, 1½ inch in diameter, with small protuberance at the end.

13. *Enchyleena tomentosa* (*Chenopodiaceæ*).—Native name on Cloncurry, *Koolo-loomoo.* A perennial shrub, found all over the plain country on the Flinders and Cloncurry, frequently under the shade of trees; about 2 feet high; of a spreading tender nature. Numerous fine fleshy leaves, 1 inch long. Fruit a small red berry, flat, quite sweet; eaten raw. Called saltbush.

14. *Grewia polygama* (*Tiliaceæ*). Roxburgh.—Native name on the Cloncurry, *Kooline.* A woody perennial plant, 1 to 2 feet high; grows among the grass on the Cloncurry and Mitchell, and all over North Queensland. Leaves large, alternate, ovate, serrated, strongly veined, 2 inches long. Berries brown and smooth, two or four in an axillary peduncle, dry and hard, called emu berries, eaten raw. Leichhardt mentions this plant as having made an acidulated drink by boiling the berries in water when on his exploring expedition in Northern Queensland.

15. *Santalum lanceolatum* (*Santalaceæ*).—Native name on Cloncurry, *Tharrah-gibberah.* Tree 20 feet high, with drooping

branches. Leaves acute, lanceolate, opposite, 1½ inch long. Flowers small and white, flowering in September. Fruit black when ripe, oblong, of a sweet taste, a fleshy drupe, the size of a small plum. Found all over the Flinders and its tributaries.

16. *Acacia farnesiana* (*Leguminosæ*).—Native name on Cloncurry, *Bunkerman.* A perennial prickly shrub, with numerous branching stems, 12 feet high, found on the Flinders plains. Small pinnate leaves. Flowers grow singly, with a strong sweet scent. Pods 2 inches long; round. Roasted before using when young.

17. *Acacia pallida.* Bentham.—Native name on Cloncurry, *Yadthor.* A soft-wooded tree 20 feet high, with drooping branches; grows on the plains on Cloncurry and Mitchell. Leaflets small and numerous; pendulous. Young trees thorny. The roots of young trees are peeled and roasted for food.

18. *Loranthus exocarpus* (*Loranthaceæ*).—Native name on Cloncurry, *Thappin.* The mistletoe growing on the whitewood tree *Atalaya hemiglauca* all over the Flinders plains; grows in heavy masses. Leaves curvate and irregularly shaped. Flowers red and yellow, thin and long. Fruit oblong-pointed; a fleshy drupe, ½ inch long, with a soft stone. Gummy and sticky. Fruits in September. Eaten raw when ripe; sweet and pleasant taste.

19. *Cucumis pubescens* (*Cucurbitaceæ*).—Native name on Cloncurry, *Boomarrah.* The small cucumber grows on the plains and swamps, and among grass. Stem and leaves covered with short hard bristles. Yellow flower. Fruit 1½ inch long and ¾ inch broad; specked, pale green, and white, or striped. Grows in great quantities after the wet season, remaining sound months after the small vines have disappeared. They are freed from the hairs by being rolled on the ground in handfuls. The natives bite off one end and press the pulpy substance and seeds into their mouths, and throw away the bitter outer rind. They are often roasted in the ashes, and are frequently used by the whites as a vegetable, raw and cooked.

20. *Cucumis acida.* "Tarquin."—Native name on Mitchell, *Ghewitchu.* Similar to *C. pubescens*, but smooth, or glabrous. Grows in shrubs and shady places on the Mitchell River. Fruit similar, but darker in colour.

21. *Cucumis melo.*—Native name on Flinders, *Binjie-binjie.* A small wild melon found on the plains among the grass, 2 inches in diameter, striped. Eaten raw. Several other varieties of small melon grow after the wet season on the plains, which are used for food.

22. *Ipomœa turpethum* (*Convolvulaceæ*).—Native name on the Cloncurry, *Kar-Kor.* A strong growing vine, annual. Leaf

6 to 8 inches wide, smooth and shining, and a large white flower, found on the plains after wet seasons. The seeds are large and black; three or four clustered on a long peduncle, axillary, covered with a fine tissue. The buds are eaten raw, while the seeds are white and soft. They are very plentiful on the vines after rains, and are made use of by whites as a vegetable.

23. *Dioscorea sativa.* Linn. F. Aus., vol. vi.—Native name on the Mitchell, *Karro.* Strong growing vine, on trees on river banks and scrubs in the Lynd and Mitchell rivers, very abundant in the wet season. Has numerous large tubers, with hair-like roots from all sides; yellow inside and very bitter. The tubers are gathered and stored in their camps. For eating they are first roasted, then broken in water and strained or squeezed through fine bags made of fibre, into long bark *koolimans*, or troughs, and washed through many waters: the sediment being stirred while water is continually poured in, and run off over the pliant edges of the trough. One native woman will mind several of these troughs at the edge of clear water. When it is sufficiently washed, and the bitter part drawn off, basins are made in the sand, lined with soft mud, in which the yellow fecula, looking like hominy, is poured. The water drains off, leaving the residuum to be scooped up with mussel-shells into large basins made of bark. The roots can only be used after this preparation, and are the principal part of their vegetable diet. Leichhardt mentions having tried to use these bitter roots on the Lynd River, having found them in the blacks' camps.

24. *Securinega obovata.* F. v. M.—Native name on Cloncurry, *Tharginyah;* on Mitchell, *Arrimby.* Perennial shrub, with numerous straight stems, 6 to 7 feet high, soft and brittle. Leaves alternate, entire surface rough, paler underneath. Fruit, small and white and juicy, grows in great quantities, fruiting in October. The natives gather them in bark *koolimans* to bring into their camps in bushels; about the size of small peas; eaten raw. Grows all over the country, from the Cloncurry to the Mitchell.

25. *Eugenia suborbicularis.* F. Aus., vol. iii, p. 285.—Native name on the Mitchell, *Oloorgo.* A large tree, 30 to 40 feet high, called a plum-tree; smooth brown bark. Leaves large and broad, gathered in clusters at the end of branchlets. Large white flowers, with numerous stamens. Fruit large and red, with stone. Eaten ripe. Grows in the sandy forest country between the Lynd and Cooktown.

26. *Terminalia platyphylla.* F. v. M.—Native name on the Flinders, *Durin.* Tree, 30 to 40 feet high. Leaf 6 inches long; rough bark, broken in small squares; wood hard and tough. Fruit small, oblong-pointed, blue when ripe, eaten raw. Grows

in or near watercourses on the Cloncurry, Gilbert, and Mitchell Rivers.

27. *Parinarium nonda.* F. Aus., vol. iii, p. 426.—Native name on Mitchell, *Yuley.* Large shady tree; grows in sandy forest country from the Saxby River to Cooktown, 30 to 40 feet high, with spreading branches, and drooping foliage: small flowers. Fruit 1½ inch long, yellow when ripe, dry and mealy, with a rough taste, small rough stone. Eaten raw when ripe; very plentiful; much eaten by emus. It also represents one of the clans of the Mitchell blacks.

28. *Careya australis* (*Barringtonia careya*). F. v. M.—Native name on Mitchell, *Ootcho*; on Cloncurry, *Go-onje* and *Gunthamarra.* Tree in open forest, between the Saxby and Endeavour Rivers, very common, sometimes 20 feet high. Leaves broad, and gathered in a cluster at the end of the branchlets. Flowers conspicuous, white with pink inside at the base of the stamens, opening during the night time, with a heavy smell. Fruit large, with the calyx adherent. The roots of this tree are used by the Mycoolon tribe to poison fish. The fruit is eaten uncooked on the Flinders.

29. *Eucalyptus terminalis.* F. Aus., vol. iii, p. 257.—Native name on Cloncurry, *Narm-boon-bung.* A bloodwood tree, with reddish scaly bark on the trunk; grows to a height of 30 feet or more. Has large seed vessels. Grows on the Cloncurry in places, on the Gilbert and Ennasleigh Rivers.

Manna is procured from the leaves and branchlets by laying them in pieces of bark, when the particles of resin or gum fall off, or are scraped off with mussel-shells into a bark *kooliman.* Or the leaves, when covered with the white exudation, are pounded together with a stone and roasted in the ashes, or the sugary particles are gathered as they fall from the leaves. After the wet season this food is said to be abundant. Native name is *Kulcha* on the Gilbert for the manna.

30. *Persoonia falcata* (*Proteaceæ*). R. Bn.—Native name on the Mitchell, *Nanchu* and *Booral.* Shrub or tree, 8 to 12 feet high, crooked growth. Bark soft, scaly, reddish on the trunk, smooth on the limbs; leaf alternate, long, narrow and pendant; yellow flowers. The fruit is a drupe, ¾ inch long, pale green and soft; eaten raw. Grows in poor sandy country near the Gilbert and Mitchell Rivers, in open forest.

31. *Adenanthera abrosperma.* F. v. M.—Native name on the Mitchell, *Oondoo.* Tree 20 to 25 feet high, rough hard bark, pinnate leaves; pods filled with seeds, partly red and black. Grows in poor sandy country from the Gilbert to the coast. The seeds are roasted on the coals and eaten.

32. *Hibiscus ficulneus.* F. Aus., vol. i, p. 209.—Native name

on the Cloncurry, *Coorunyan.* An annual plant, 2 to 3 feet high on the plains; a few leaves; stem erect, gummy and sticky, with a few stiff hairs. Flowers large and pink, petals towards the base beautifully red. Stem and root of the young plant roasted in the ashes very nourishing; in flavour like young potatoes.

33. *Ammania multiflora* (*Lythraria*). F. Aus., vol. iii, p. 298. —Native name on Cloncurry *Jerry-jerry.* Small annual plant, a few inches high, among the grass on the Cloncurry River, with numerous small red seeds. The whole plant is gathered and ground with the feet to separate the seeds and branches. It is then winnowed and cleaned, ground with water, and baked as a cake.

34. *Panicum decompositum.*—Native name on the Cloncurry, *Tindil.* A grass, called umbrella grass, with a branching seed stalk and broad leaves. Grows on the Flinders plains in good country. Has fine yellow seeds, which are gathered and ground between two stones with water, and baked as a cake in the ashes, or poured in a fluid state into the hot ashes, when it thickens. It is found nourishing and satisfying.

35. *Oriza sativa* (indigenous).—Native name on Cloncurry, *Kineyah.* A wild rice, 4 to 6 feet high; grows after the wet season on the plains and swamps all over the Gulf country. The seeds are large and awned, similar to the rice of cultivation. The heads are gathered and threshed out on a flat stone. They are bruised and winnowed to get the husks from the seed, then ground between two stones with water, and roasted in the ashes.

36. *Sporobolus Lindleyii.* F. Aus., vol. vii.—Native name on Cloncurry, *Yak-ka-berry.* A tender, delicate grass, 1 foot high, with fine seeds and stalks; grows on ridges on the Cloncurry. The seeds are ground and roasted in the ashes in the form of a cake.

37. *Sporobolus actinocladus.* F. Aus., vol. vii, p. 623.—Native name on Cloncurry, *Jil-crowa-berry.* Another short grass, about 1 foot high; grows on pebbly ridges, near scrubs of gidya, or *Acacia hemilaphylla.* After gathering the stalks of seed, they are steeped for several hours in water, when the seed is easily rubbed out, and then ground with water between stones and roasted. Wherever this grass grows in New Queensland, the natives use it in the same manner.

38. *Portulaca olearacea.* — Native name on the Cloncurry, *Thuk-ouro.* The comman pigweed, or portulac; grows after the wet season on the banks of rivers and sand ridges in great quantities. The fleshy stalks are roasted in the ashes, which softens them; also eaten raw. The seeds are roasted after grinding, and made into a cake; they are gathered by laying heaps of the stalks to dry on sheets of bark.

39. *Ficus aspera.* R. Bn.—The small fig, with rough leaves; grows in sandy places, on the banks of creeks. Great numbers of small black fruit, eaten when ripe.

40. *Ficus vesca.* F. Muel.—A large tree; grows to 40 feet high on the banks of the Mitchell and other rivers on the coast. Leaves ovate, lanceolate, acute, smooth, dark green above and paler underneath. The fruit when ripe turns red, and grows in clusters from the trunk, and on some of the larger branches. Eaten raw.

41. *Ficus sp.*—Native name on the Mitchell, *Orbolo*, or *Coomey.* A dark green shady tree, 16 to 20 feet high, with smooth oval round leaf, broad alternate; bears a small fruit, eaten raw; grows on the banks of the Mitchell, in good soil.

42. *Sarcocephalus Leichhardtii.* F. Muel.—Native name on the Mitchell, *Oolpanje;* on the Cloncurry, *Coobiaby.* A large tree, growing in scrubs along the banks of rivers, 40 or 50 feet high, called the "Leichhardt tree"; erect stem; large shining leaves, deciduous; flowers globular, fragrant; fruit nearly 2 inches in diameter, soft when ripe, the pulp slightly bitter. Eaten raw.

43. *Owenia acidula.*—A handsome shade tree, with branching foliage, and glossy pinnate leaves; covered with red fruit, eatable part, crimson sarcocarp, large stone, the fleshy part very acid. Grows on stony ridges on the Cloncurry.

44. *Bauhinia carronii.* F. Aus., vol. ii, p. 296.—Native name of Mycoolon tribe, *Thalmera;* of the Myappe tribe called *Pegunny.* A branching shady tree, with round oval leaves, in pairs, deciduous; grows all through the Gulf country; has abundance of scarlet flowers, appearing before the leaves. The flowers contain a clear honey, which is squeezed out by the fingers, and sucked. They also place the flowers in water, and make a drink of the water.

45. *Albizzia monilifera.* F. v. M.—Native name on Cloncurry, *Mullar.* A spreading bushy tree; grows near water or lagoons near Normanton and Lower Mitchell; deciduous, bright green foliage. The young pods, several inches long, are roasted and eaten.

46. *Cymbidium caniculatum* (*Orchideæ*). F. Aus., vol. vi.—An orchid growing in the hollows of trees, with thick drooping leaves, 1 foot long. The tubers of this plant are used by the blacks in Wide Bay, and other districts; of a gelatinous, sticky consistency. It is considered good for dysentery, and such complaints.

47. *Pandanus aquaticus.* F. Aus., vol. vii, p. 148.—Native name on Mitchell, *A-Koo.* The screw-palm, grows in sandy country, often near creeks. The strong leaves are armed with

three rows of spines. The fruit, a large cone, is orange red when ripe, covered with rough nuts, embedded or attached to a rachis. The nuts are broken off, and held close to the fire, when the kernels are taken out and eaten. These broken nuts are to be seen in great numbers round their old camps through the sandy forest country.

48. *Cycas media.* R. Bn.—A graceful palm, with a crown of fruit growing at the base of the leaves; fruit round and smooth, the size of a walnut; very common on the coast, near Cooktown. The kernels of the nuts are poisonous, unless prepared by fire and water. After breaking the kernels and drying them, they are placed in a dillybag in water for several days, to extract the bitterness; the product is then ground with two stones to a pulp, and baked in the ashes. The blacks in Wide Bay used the nuts in this way. "James Morrill," the shipwrecked sailor, mentions that the natives about the Burdekin River also used them in such a prepared manner. White men have suffered for days from merely tasting the nuts in a raw state.

49. *Encephalartos miqueli.* F. Muel.—Dwarf zamia; grows in stony, poor country, a few feet high, near the coast, at Wide Bay and Cooktown. Bears a large cone of fruit, not unlike a pineapple. The seeds are baked in the ashes first, and soaked in water for several days, when they are pounded and roasted; experience tells blacks when they are fit for eating.

50. *Xanthorrhœa arborea.* F. Aus., vol. vii, p. 115.—Grass tree; grows in poor stony or sandy country, near the coast. The white tender base of the leaves are eaten, as well as the extremities of the young shoots. A small grub lives at the roots of this tree, which is considered a particular delicacy.

51. *Avicennia tomentosa.* R. Bn.—Mangrove; grows along salt-water creeks and swamps, plentifully near the shores of the Gulf. The fruit is baked or steamed in hollows made in the ground, in which they make fires; it is soaked and afterwards baked in the ashes.

52. *Caladium macrorrhizon.* Vent.—A strong herbaceous plant, with large sagittate leaves. Found in moist, shady places, near scrubs or creeks. The young bulbs, of a rose red colour, are baked in the ashes, and pounded, and the same process repeated over and over again till hard and fit to eat. The leaves and bulbs are very hot to the taste.

53. *Entada scandens.* F. Aus., vol. ii, p. 298.—A strong climber; pod 3 to 4 feet long and 4 inches broad; the seeds are 2 inches in diameter; grows on the Endeavour River, and always near the coast. The beans are roasted first, or baked in ovens, are then pounded fine, put in the dillybags, and left for ten or twelve hours in water, before they are fit to use.

54. *Sterculia rupestris.* Benth.—The bottle tree, sometimes called *Kurrajong* tree; grows all over North Queensland. The roots of the young trees are roasted and eaten.

55. *Cochlospermum sp.*—Native name on the Mitchell, *Kurrutcha.* A peculiar thorny tree, with large palmatifid leaves, growing in a crown near the top of the tree; straight stem covered with broad spines; grows 10 to 12 feet high, on the banks of the Mitchell. The roots of the young trees are roasted and eaten; the edible part is white and delicate, and of a most agreeable flavour.

56. *Nymphæa gigantea.* Hook.—Waterlily, very abundant in all lagoons and ponds, with large blue or white flowers. The porous seed stalk is peeled and eaten raw and roasted, as well as the round seed top, making a distinction between those with brown and black seeds. The large rough tubers growing in the mud are roasted; not unlike a potatoe, but yellow and mealy. It is a much used article of food with the blacks. On the Mitchell the roots are *Thoongon,* the seed stalk is *urgullathy,* the seed head *irrpoo;* on the Cloncurry the tubers are called *Thindah,* the stalk *Thoolambool,* and the seed head is *Millee.* The seed tops with light-coloured seeds are rejected.

57. *Nelumbium speciosum.* Willd.—The pink waterlily, a splendid aquatic plant, large floating leaf, 2 feet in diameter, peltate and slightly concave. Pink flowers, 6 to 8 inches across. The seeds, from twenty to thirty-five, are embedded in a flat-topped torus. They are broken with a stone, and eaten raw. Grows on the coast country, in large permanent lagoons, at King's Plains, near Cooktown, also near Rockhampton.

58. *Aponogeton sp.*—Native name on Cloncurry, *Tharndoo.* Found in shallow lagoons near Normanton and the Gulf Rivers. Oblong leaves, floating on the surface of the water; rachis erect; flowers small and yellow. Bulbs spherical, 1 inch in diameter; roasted or baked.

59. *Cynanchum sp.* (*? pendiculatum*).—Native name on Cloncurry, *Winejul* and *Mooloory;* on the Gilbert River, *Eendoolah.* A creeping plant, milky, in sandy country on the Cloncurry; leaf long and narrow, opposite, 2½ inches long. Pods cone-shaped, 3 inches long, full of white cotton and seeds; eaten raw when young.

60. *Eucalyptus terminalis,* and other Eucalypts.—Galls grow on the young shoots, terminal, called *Kurcha,* like wooden balls, or excrescences, 2 inches in diameter. A small insect inside is eaten when the woody part is soft.

61. *Gardenia edulis.* The little bread-fruit tree on the Lynd River. Leichhardt's "Overland Expedition," p. 273.

62. *Musa Brownii.* F. Mueller.—The native banana. Grows

in scrubs on the alluvial banks of rivers from Cleveland Bay northward. The fruit is full of black seeds.

63. *Boerhaavia diffusa.* Linn. F. Aus., vol. v, p. 277.—Native name on the Cloncurry, *Goitcho* (Nat. Ord., *Myctagineæ*). A spreading, sticky, viscid herb, prostrate, several feet long. Leaf heart-shaped, darker on the upper surface. Grows on the sandy banks of the Mitchell and Cloncurry; has a long thin yam or root, 15 inches long, which is roasted and eaten; a pleasant mealy taste, and very nourishing.

64. *Carissa Brownii.* F. v. M.—Native name on the Cloncurry, *Kunkerberry.* A prickly branching shrub, about 4 feet high, spreading very much; small white flowers; leaves narrow, opposite. Fruit a small oval or oblong sweet currant, brown when ripe; grows in great quantities after the wet season on the Cloncurry in February.

65. *Limnanthemum crenatum.* F. v. M.—Small water plant, with fringed yellow flower of a fading nature; leaf, heart-shaped, serrated edges, or indented, floats on the top of the water in shallow lagoons; has a small tuber, round, roasted and eaten by blacks.

66. *Hibiscus pentaphyllus.* F. v. M.—Native name on the Mitchell, *Inne-idne.* Small shrub, 2 feet high, with two different kinds of leaves in the same plant; stems branching from the ground; roots and buds eaten raw. Found on the banks of the Mitchell River in loose soil.

67. *Polygonum hydropiper.*—Native name on Lower Flinders, *Booragoolah.* Found in shallow waters, with a long trailing stalk, sometimes reddish, and hot to the taste. The stalk is roasted and peeled, the pithy heart eaten.

68. *Acacia decosa.*—Found on the plain country on the Flinders; a branching shady tree, about 15 feet high, generally covered with lumps of gum, which is always sought after to eat as food.

69. *Tricosanthes palmata* (*Cucurbitaceæ*). F. Aus., vol. iii, p. 315.—Native name on the Cloncurry, *Thowan.* A rough strong climber, growing up the trunks of the tallest trees on the Flinders Plains, and on the Mitchell River; broad palmate leaf, or lobed. Stout stem, scaly, rough, and reddish, has a large root or yam; roasted and eaten.

P.S.—The identification of the specimens has been kindly undertaken by Baron Ferd. von Mueller, K.C.M.G., the Government Botanist of Melbourne, who has always shown himself very desirous of assisting, in any and every way, all who come to him for information. Many of the specimens have been determined by Dr. Woolls, F.L.S., of Richmond, who is ever

willing to give the benefit of his studies and large experience in Australian botany to any one seeking aid.

Plants used for medicine, or for stupefying fish, and for manufacture of weapons and cordage.

1. *Ocimum sanctum* (*Labiatæ*). Linn. F. Aus., vol. v, p. 74.—Native name on Cloncurry, *Mooda*; on the Mitchell, *Bulla-bulla.* A fragrant shrub, growing near scrubs of gidya on the Cloncurry and Mitchell, about 2 feet high, with a woody, branching stem. The odour of this plant fills the surrounding air. The leaves are crushed up in a *kooliman* of water and drunk for sickness. White people make tea of it, called bush tea.

2. *Excœcaria parviflora.* F. v. M.—Native name on Cloncurry, *Jil-leer.*—The gutta-percha tree, peculiar to the Gulf country and the Mitchell River, sometimes 20 feet high. The wood of a strong pleasant smell; rough bark, and small leaves growing in raised clusters. Tree full of milky juice, very dangerous to the eyes. The natives use the bark bruised up in water in a *kooliman*, and heated with hot stones from a fire close by. This wash is applied externally to all parts of the body, for pains and sickness, while hot.

3. *Loranthus quandong.* F. Aus., vol. ii.—Mistletoe of the *Acacia hemalophylla*, numerous scarlet flowers hanging in clusters. The leaves are broken up in water and drunk for fevers, fever and ague, &c.

4. *Melaleuca leucadendron.* Native name on the Mitchell, *Atchoo-urgo.*—The large tea-tree found in the beds of all large rivers in the Gulf country. The young leaves are bruised in water and drunk for headache and colds and general sickness. The bark, which grows in thick layers, is stripped to make bedding for the natives, to protect them from rain, and is carried about from camp to camp.

Leichhardt mentions that the natives obtained a drink from the blossoms of this tree, soaked in water.

5. *Eucalyptus pruinosa.* Schaur, F. Aus., vol. iii, p. 213.—Native name on Cloncurry, *Kullingal.* Silver-leaved box, 20 feet high, stunted and crooked growth. Leaves silvery grey, covered with bloom, broad, opposite, and sessile. The inside bark is bruised, and wound round the chest and body very tightly for pains, damping it with water, and sitting in the water.

6. *Eucalyptus tetradonta.* F. Aus., vol. iii, p. 260.—Native name on Mitchell, *Olm-bah.* Called stringy bark or messmate. Found on the Mitchell and near Normanton in sandy country; 50 feet high, of a straight growth. Has pretty white

flowers and a large operculum. The leaves of the young trees are broken, and bruised up in a *kooliman* of water with the hands, till the water is thick and green, when it is drunk for fevers and sickness, headache, &c.

7. *Eucalyptus microtheca.* F. v. M.—Native name on Cloncurry, *Jinbul*, or *Kurleah.* The coolibar, or flooded box, found on all Gulf waters, often in flooded ground, a tree of crooked growth, branching crooked, 30 feet high. The branches and leaves, after cutting up small, are laid in the water for several days, which has the effect of discolouring the water and sickening the fish. It is universally used. The inside bark is used as a poultice for snake-bite, crushed and heated with hot stones in water.

8. *Tephrosia sp.* (*Leguminosæ*).—Native name on Cloncurry, *Jerril-jerry.* Shrub, 3 feet high, found on sandy ridges on the Cloncurry, of a bluish appearance. Small dark red flowers like a pea. Pods 1 inch long. Leaves cuneate. The plant is bruised, leaves and all; and used to poison fish.

9. *Luffa aegyptiaca.*—Native name on the Mitchell, *Bunbun.* A vine found in the bed of the Mitchell, Gilbert, and Ennasleigh Rivers, climbing into the tallest trees. Broad leaf and large yellow flower. Pod 6 inches long, full of juicy seeds, and a spiral thread. Used when green to poison fish.

10. *Barringtonia racemosa.* Blume.—Native name on Mitchell, *Yakoora.* Fresh-water mangrove, found in shallow lagoons on the Mitchell and dry swamps. Long pendant flowers, and spreading foliage. The bark is cut up in small pieces, and hammered on a stone fine and small; placed in the water, fish are said to eat of it and die.

11. *Barringtonia careya.* Roxburgh.—The bark of the stem is used to poison fish, and also the roots of the tree, by the blacks on the Lower Flinders, though not used on the Mitchell. "James Morrill" mentions that the blacks on the Lower Burdekin used the bark of the stem to poison fish in fresh water, and the bark of the root in salt water.

12. *Plectranthus congestus* (*Labiatæ*).—Native name on the Mitchell, *Kar-kar.* Used as medicine, leaves and stems.

13. *Pterocaulon glandulosus.*—A strong-smelling herb; grows on ridges on the Mitchell, 2 feet long. Leaf serrated, scabrous, decurrent, used by crushing up in water, and drinking for sickness.

14. *Gnaphalium luteo-album.* Linne. — Native name on Mitchell, *Kar-Kar.* Annual herb, 15 inches high, found in rivers or scrubs; soft velvety feel; leaf long, narrow, sessile, obovate, opposite; small yellow flowers. Used as a drink after bruising in water.

15. *Heliotropium ovalifolium.* Forsk, F. Aus., vol. iv.—The general name for small medicinal herbs on the Mitchell is *Karkar.* Herb with small yellowish flowers, on axillary branchlets; leaf alternate stipulate, soft and bluish. Grows 2 feet high in the bed of the Mitchell; common. Used as a wash for the head and body, and taken internally for fevers.

16. *Moschosma polystachium.* F. Aus., vol. v, p. 75.—Native name on the Mitchell, *Jin-jikky.* An erect, slender, much-branched annual, 2 to 3 feet high, slightly pubescent, stems acutely four-angled. Found on the Flinders and Mitchell Rivers in good soil; used as a medicine by bruising up in water and drinking for fevers and headache; strong smelling.

17. *Drosera Indica.* Linn.—Grows in moist places in the Mitchell, and used by the young blackfellows or boys to make their whiskers grow, by rubbing on their face.

Plants principally for Manufactures.

18. *Hibiscus panduriformis.*—Native name on the Mitchell, *Bee-allo.* A fibrous plant; grows to 10 feet high; scabrous and rough. The bark is stripped, cleaned, and twisted into cordage for bags, nets, and twine; found on the Mitchell.

19. *Psorelea archeri* (*Leguminosæ*).—Native name on the Cloncurry, *Wommo.* Annual plant found on the Cloncurry where water has flowed, or near creeks; 2 feet high; leaf acute, serrated, opposite, dark green. The plant is pulled up, soaked some hours in water, and left to dry, when the bark peels off, and is kept for use, for making cord, nets, and twine.

20. *Erythrophleum Laboucherii.*—Native name on the Mitchell, *Ah-pill.* Called ironwood tree; found in sandy forest country from Cooktown to the Flinders. The wood is dark red and very hard, and is used for *wommeras* principally, sometimes throwing-sticks and points of reed spears.

21. *Thryptomene oligandra.* F. v. M., Fragm., 1–11.—Native name on the Mitchell, *O-may.* A small tree; grows in sandy country on the Mitchell, Gilbert, and other rivers in North Queensland, often near swamps; small white flowers growing among the leaves at the extremities of the branchlets; wood hard and fine, used for the points of reed spears.

22. *Acacia homalophylla.*—Native name on the Cloncurry, *Woong-arra.* The gidya tree, a kind of myal without the drooping foliage; wood dark and very hard, violet scented; grows in ridges on the Cloncurry. The wood is used for boomerangs and spears; some spears are found 14 feet long, made of one straight piece of solid wood without a flaw or knot.

23. *Corypha australis.*—Cabbage-tree palm; grows on the

Endeavour and Normandy Rivers in rich scrub soil. The wood is split for spears, mostly spear-heads for barbed reed spears.

24. *Clerodendron floribundum.* R. Bn.—Native name on Cloncurry, *Thurkoo.* Shrub about 4 feet high on the Upper Cloncurry; wood soft and pithy; broad shining leaf, on a long petiole. Two dried pieces of this wood are used for making fire drills with.

25. *Ventilago viminalis.* Hooker.—Native name on the Cloncurry, *Thandorah.* Shrub or tree, about 15 feet high; long pendent foliage; leaves 3 to 5 inches long; wood soft and yellow; crooked and straggling growth; very common all over North Queensland; two pieces of dried branches are used for fire drills; it is the most commonly used.

26. *Sesbania aegyptiaca.* Person.—Native name on Cloncurry, *Ngeen-jerry.* Called peabush, an annual, with erect stem and spreading branches; from 5 to 7 feet high; grows in the beds of creeks and on plains on the Cloncurry; used for fire drills as the two former, also for ends of reed spears.

27. *Psychotria sp.*—Shrub, found on the banks of the Mitchell River and near scrubs. Wood soft and smooth bark; used for fire drills; preferred of all wood for the purpose.

28. *Panicum leucophæum.*—Grass found on the plains of the Cloncurry, about 12 inches high, in strong bunches with matted roots; leaves short and broad, partly sheathed. The fibre of the leaves is used for soft twine and thread, being twisted while green.

29. *Panicum trachyrrachis.*—Native name on the Mitchell, *Oo-kin.* A tall swamp grass, grows 6 to 8 feet high; straight stem; numerous spreading branchlets covered with fine reddish seeds. The fibre is peeled from the under-surface of the broad leaves by breaking the leaf across with the fingers and drawing the fine string of fibre downwards, twisting them at the same time; used for twine for bags and fine nets.

30. *Hoemodoroum coccineum.* F. Aus., vol. vi.—Native name on the Mitchell, *On-tho.* Annual herb, with scarlet roots and long fleshy leaves, 1 to 2 feet long; grows in poor sandy country on the Mitchell and over North Queensland. A fine, strong fibre is found in the tough leaves, which is made into close fine bags for straining the *karro* meal through when washing in the *koolimans.*

31. *Abutilon otoearpum.* F. Aus., vol. i, p. 202.—Native name on the Cloncurry, *Ballan-boor.* Annual, with erect stem about 7 feet high; leaves soft, acute, serrated, heart-shaped; grows in the Cloncurry. The bark is stripped off and scraped clean with mussel-shells, and used for strong cord for netting for game.

32. *Sterculia sp.*—Native name on the Cloncurry, *Eendurah.* Called *Kurrijong* tree, a tall shady tree. The seed pods are

eaten roasted; the inside bark is used for strong cord for wallaby nets and lines, &c.; the wood is made into shields.

33. *Eucalyptus tetradonta.*—The inside bark is stripped clean and made into troughs, tied up neatly at each end, and fixed with a wooden skewer, for washing the *karro* meal in. Very tough and pliable; some of them are 4 feet long.

34. *Cyperus sp.*—Native name, *Thubbin* on the Cloncurry. Grows round the edge of waters with erect stem, 3 feet high. Used by the children to play with as spears in the camp; also the winged seeds of *Atalaya hemiglauca*, called the white-wood tree, are used to play with by twirling them in the air.

35. *Typha angustifolia* (*Typhaceæ*). F. Aus., vol. iii, p. 159. —A common reed or rush growing in still water; erect stem, with soft brown cylindrical seed head or flower; found in all waters. Stem used for reed spears; leaves and roots also edible; grows on the Mitchell.

APPENDIX I.

VOCABULARY OF ABORIGINAL WORDS.

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
1. Father ..	kambī-ga ..	barle	moochore ..	you ah	athim	moocho ..	baboon.
2. Mother ..	amăker ..	mamme ..	yakoroo ..	nellah	amunga ..	yakoroo ..	ab ong.
3. Sister ..	woo-tooka ..	jindah	kool-amoo ..	jane goor ah ..	atheetha ..	kool amoo ..	duabeen.
4. Brother ..	kook-ootcha ..	kog-goo ..	ngah-bone ..	koth ah ..	moko	ngabone ..	deebar.
5. Elder brother	bool-ootcha ..	koggoo	batch i moon ..	jo an jo ..	athil	koolamoo ..	nūne.
6. Widower ..	karnde-watheroo	boorgoon ..	warrego-milbo ..	ragatah	— ..	mondurah ..	gungee won.
7. Widow ..	booka - ngare - mulla.	koolonby ..	koom-ilbo ..	non come ah ..	— ..	mintherah ..	boolon.
8. Fatherless ..	ngartha combitcha.	millegun-beewy	mootche-thoon - go.	you am ah ..	thiberung ..	goonyungo ..	dool gun dum.
9. Motherless ..	ngartha - appa - morne ..	nugunga beewy	wandalbo ..	nel am ah ..	thumerung ..	yakor thoongo	abbaubie.
10. One whose child is dead	ngare-gutchingo booka-molly-che	boorah - yuunde beewy.	— ..	pey yah ..	— ..	goitho moochon.	cockore mem.
11. One whose sister is dead	ngare-booka ..	an-yuunde goocha wurle.	— ..	at nonga-nonga	— ..	thanna mootchere mirreban	dunbeen gunkewon.
12. Uncle (father's brother)	wak-itcha ..	kowah	ngammin ..	my yah ..	thikky ..	ngammin ..	kumme.
13. Aunt (father's sister)	me-chootcha ..	barboon ..	thoo rin ..	my yah ..	amunga ..	boolon ..	yurerrie.
14. Nephew ..	king-kootcha ..	kowah	biteh a moon ..	yean angoorah	moko	ngunbun ..	barrungun.
15. Niece ..	wok-kootcha ..	barba	gooth a thoo ..	yean angoorah	— ..	ngial	barulgun.
16. Husband ..	marle	girre-goorai ..	bunjil	notha	on yune yu ..	ngathea ..	molinme.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
17. Wife ..	ngarmpa ..	gindyah, goorai	ngathea ..	teenyah ..	a thōoa ..	thananther ..	mollein minkin.
18. Son	weem-burra ..	geebah anyu-unde.	bin jammo ..	yan mangoorah	a willung ..	ngunbun ..	guppore.
19. Daughter ..	weem-burra ..	noogean ..	ngum ban ..	kolyorah ..	alalimbine ..	ngunbun ..	newengin.
20. Grandfather (father's father).	math-etcha ..	ngadje	mootchoo ..	owan atha ..	atheem ..	boobo-bobbin..	miberam.
21. Grandmother (father's mother)	kon-necha ..	kom-me ..	mootcho thoon-go	mema	amunga ..	kommin ..	goon yew.
22. Man ..	goolta	neegah	yagoyne ..	apmah	jimme and parma.	bunjil.. ..	geebe illa.
23. Woman ..	burruka ..	numme.. ..	mootho-mootho	branburra ..	aruntha ..	bunya.. ..	geen ulla.
24. Boy.. ..	gitch ingo marle	gubah	batchingoloo ..	oolmyah ..	angannung ..	buchingore ..	kokore ulla.
25. Girl.. ..	goom bulka pulla.	undalgine ..	goothathoo ..	joorcamook ..	amulla kul ..	munkine ..	yarnun.
26. Old man ..	ol manda murta	koi yah.. ..	moa	dourgoinyah ..	olpa	moa	mobbore bun-gole.
27. Old woman	kondineja bur-ruka.	woneon jiggum	mootho-mootho	romurah .	aruntha ..	warmoora ..	goreku urekul.
28. Unmarried girl.	ngartha ween butcha.	koola karre ..	ngathea-thoongo	quilamah ..	angunnung ..		yeube.
29. Unmarried man.	martoo	koola karre ..	bunyah-kullah..	teen yamah ..	angunnung ..	yabberin ..	yore.
30. Summer ..	bootche ..	wec joom ..	woolbarry ..	nyanquattah ..	atha	boobara ..	guarm bulkul.
31. Winter ..	mokoroo ..	mokoor.. ..	yerrungah ..	allwarrah ..	olvargo ..	koobinburrah	tarra.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
32. Sun	yuko	ngyam	binjammo	nyanah	atha	binjammo	bickey.
33. Moon	bittola	kee tyne	kog arrah	kenah	thargun	wannajungerry	barboon.
34. Stars	burl-li	windah	jinby	alliah	ilbannung	jinbe	barbun bulun.
35. Cloud	in da	karrah	worrool	morcha	ool mallo	winango	woloi.
36. Heavens	karra bino	—	marra-marra	londorah	ingathy	weeallah	bookoon.
37. Rain	mokora	kollone	vindune	woon juneoo	okno	woonjune	eurong.
38. Heat	bootche	wee joom tarre	yango mi mi	peercha	atha	yang o mi mi	goiekun.
39. Cold	mokoroo	mokoor	yerringe	karah	oloorgo	yerrunga	ditill borun.
40. Hill	murtoo	thooloom	minde	irongoll	olgoon	moorko	keena.
41. Sand	korinyah	gittoorah	mun kallah	galah	oorgah	num kullo	getta.
42. Land	murnde	wood jarrah	mug geer	bolbah	ogu	ngoorah	yaroon.
43. Stone	yeruda	mooneem	minde	rongal	ol gone	minde	duckey.
44. Water	ngoko	ngarro	yappo	ackmah	okno	kammo	koong.
45. Sea	ngoko	kargul	yappo julka	earangah	—	kammo gulcha	wool koong.
46. Tree	gerah	—	goonga	koorah	okoo	koonkah	—
47. Canoe	bool yango	walloo	beembah	noorock	oongarrare	ngunkore	goondool.
48. Fish	woonga, marre	—	balby	oyah	ooyon	balby	gorool.
49. Grass	moodtho	boookourgo	yalkoyne	gwynah	ookin	gutheer	barn.
50. Lily	nailye	—	thandoo	tarookita	thoongon	koonkoll	nulkine.
51. Lily-roots	nginde	—	thoolambool	ooyearah	irrpoo	thando	yewrool.
52. Dog	kulle, multharra	wahrudje	yumbe	twaggah	oota	yumbe	mirru.
53. Kangaroo	murra booga	ngoongo	matchimbah	orotha	inna	korroo	mur re.
54. Wallaby	marringa	booleen	—	polapmerah	parley	kiakulko	yar goon.
55. Kangaroo-rat	goote	kooloogah	jiggul	korah	illengore	jiggul	geenum.
56. Bandicoot	boorginga	yuloor	woone	outulba	omun	woone	woon kore.
57. Opossum	yerrindure	gooradji	kogoyne	wombah	oolun	kogome	koroi.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goouine.
58. Snake	mul kirre	choom bal	thangeer	mel corah	ooloor..	jinure..	woonka.
59. Emu	kulthe ..	googomgan	junkerberry	near coolah	a koon	junkerberry	moree.
60. Native cat	kinyah ..	barlin gin	—	bamboorah	il pair..	jiggerdah	ginying.
61. Squirrel	pelah ..	barago ..	—	langunamyah	olmbe..	mondune	auboor.
62. Flying-fox	karkoola	wallimbah	moong ore	mangwattah	imbul..	moongore	geraman.
63. Native bear	wottoo ..	toon gerre	—	moorgoteyeah	—	—	koola.
64. Rat..	wonga are	jimmo ..	karrooga	korah ..	orool ..	janna thulla	moolbar.
65. Spear	karkarroo	cummi ..	goongon	alcah ..	alka ..	goongon	gunna.
66. Boomerang	wonna ..	toowah..	yalker berry	aingyellow	omboon	yalkerberry	bulkun.
67. Shield	bia'willy	kougun..	yamboro	balta ..	goolinarry	yamboro	heilaman.
68. Nullah	thurtoo, birra	koormun	thamballah	nyah ..	ilm bil	thambullo	kootha.
69. Knife	ngiba ..	kullinjah	—	kau karie	beelbarraro	beelbarro	duckey.
70. Tomahawk	Thoro mia	woo garrah	marreah	toolcarah	ekun ..	jookah doon-gah	mogeme.
71. Water-kooli-man.	ngoko mirra	koo loon	ngoon gere	—	oonde..	ngoombore	dun gin.
72. Yam-stick	kuruka..	kunnai ..	bargah ..	anah ..	anna ..	largo ..	gunna.
73. Fish-net	mulka ..	ngoo line	moonah	kolanbah	onyin ..	moonah	bun gille.
74. Fish-spear	kalkaroo	warran .	yalla thuntha	olgorah	achee ..	yalla thunna	tungoo.
75. Dilly-bag	tille cha	bag (native)	—	karechicka	oolna ..	booyan	boonte.
76. Big ..	woorto ..	boor wy	wine yeer	kanenjah	ingum..	wine yeer	goorgioma.
77. Small	kotchalookoo	thoon noi	jallo ..	duarah..	oko ..	jallo ..	temorrow me.
78. Good	kine gallah	dar roy..	ootchin..	manyarah	oong ne	gootchin	kalangor.
79. Bad	thoola kulle	yoongo..	mathee..	janyah ..	inthe ..	mathee	wuttera.
80. Far away	boorre cherry	mallee dah	woolloo	lungah ..	ogoolbun	woolo ..	woonungie.
81. Close up	thile pa..	tally jah	beerha	roandorah	orgooye	beerah	kulla beerun.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
82. Strong ..	mitcharra ..	tarree	wineyeer ..	tackarah ..	arya	worragrin ..	gun kun.
83. Weak ..	ninditcha ..	yoongo	mathee	morah	alungun ..	barbul ..	duppoorapore.
84. Tired ..	thoolpa ngappa	tharrahgooney ..	lirreke	yengarbangah ..	anyula ..	lirke	dulkore-unke-won.
85. Hungry ..	yarnge	minandy ..	bool ngingo ..	mererah ..	arnge	boolney ..	kargungu balome.
86. Thirsty .	ngoko walta appa	balloon gin ..	yarpe	benah	inkay	yurby	dookore-unke-won.
87. Dead ..	booka, mala ..	walling	mootche ..	areubarah ..	ilbilby	mootchon ..	balome.
88. Sick ..	altha	tandorey ..	jillinge	jelah	ilme	mirree ..	pikey.
89. Sores ..	kallala appa ..	tandorey ..	coekee	peua	annul	coekee *or* kog-gee	team.
90. Fat ..	keengba ..	marome ..	thango wineyeer	oon gah ..	og nee	kommeer ..	marome-goot-chee.
91. Thin ..	ninditcha ..	thoonoi	mathee	wareah	inthee	yallarche ..	cokokore.
92. Tall ..	barlaroo ..	yoroon	ngural	alperah ..	oolbun ..	meedun ..	garow a run.
93. Short ..	moroo, kallo ..	therry kum ..	thaggo	sanah	ootulka ..	thaggo ..	thalbor.
94. Left-handed	yangutcho ..	wargoyne ..	wargoyne ..	wanjah	akoom	wargoyne ..	warrum *and* wottunga.
95. Lame ..	mik itcha ..	teena tandorey	lillin jingo ..	aratacoona ..	aln garngo ..	lillinke ..	dinong.
96. Blind ..	boor itcha ..	mill yoongo ..	mille kundah ..	goomah .. .	ammunaloo ..	warra, moocho	mill bong.
97. Deaf ..	yurē mukkoo ..	ngarlgan yoongo	wammah ..	ooyah	enullo	yalnah ..	beenunggăloom
98. Tongue ..	theran ye ..	ngarwah beewy	ngoolan ..	derah	ilping	ngoolan ..	toonoom.
99. Teeth ..	ngundee ..	teerah	yarchine ..	eera	ungool ..	yarrah ..	dunka.
100. Ear ..	yurē	ngarlgan ..	beenar	namoolah ..	enar	beenah ..	beenung.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
101. Foot ..	tinna	teenah	jannah	eitna	amul	jannah ..	dinong *and* teena.
102. Nose ..	mindo, moloo ..	tingan	goin geen ..	oorkala	amoo	koonyeen ..	moorroo.
103. Eye ..	mekee	mill	millee	ela	emun	mille	me *and* mil.
104. Hair ..	thartoo	marrah	warrumbo ..	kongah ..	allun	warrumbo ..	karm.
105. Head ..	tharkurloo ..	karlee	ngun kool ..	saga *or* taga ..	amboogo ..	gunther ..	karm.
106. Bald head	bunta arle ..	marrah beewy ..	goonarry ..	mara	amboogo parlna	yiyun	karm belore.
107. Grey head	goorah arle ..	kereen green ..	joongal ..	koinyah ..	alpa	boolkin ..	gilkun gale.
108. Neck ..	bunbah	woo roo ..	ngingin ..	della	otil	munna ..	que kore.
109. Sitting down	neenga jerry ..	ngiangen ..	yenne	aranea	injeenga ..	yeenah ..	bogie nenarm.
110. Walking ..	tharneen jerry ..	yarnje	wabby	aran keya ..	athoorebul yepul	wabbah ..	yenna.
111. Running ..	kulyer arkala ..	billagurren ..	wangalbo ..	arooka	inbul	bunkah ..	bumquar.
112. Standing still	bootoocha tharry	teeah mill mogor	batchingo ..	aralooina ..	anarny ..	tharry tharry	nenarm bulba.
113. Fighting ..	thurtoo bulka ..	boomeri ..	larra thulbo ..	kooritninda ..	oleerkilka ..	boonchaby ..	pikie.
114. Swimming	ata kinna ..	bowgen	bimme	alkaninda ..	ong a rary ..	beemingo ..	wool ine.
115. Diving ..	youlp oroo ..	boongeen ..	thoorke	warinda ..	koolabun ..	thurkingo ..	narm gwarry.
116. Corroborry	marne buknillo ninna	yonarro illewa ..	karrum bingo ..	wenwinga ..	irrpooroory ..	yadthan ..	arrieman.
117. Afraid ..	ngoolya ngulla	warm beeng ..	— ..	marpmar ..	ilman	kowee	witchim.
118. To cry ..	wheerah ..	doo wong ..	barringo ..	aira	ogo athathy ..	barry	nullayun karlin
119. Laughing ..	Kinda	toolooing ming	jinge	gaira .. .	eengal ogoo-longy	jinke	wathey.
120. Beardless ..	ngarte whakka bulke.	ngoobe beewy ..	yanbah kullah ..	pergamo ..	aworko karry	yanba gooncha	woka moonyin.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
121. Whiskers	balolgroo whakka bulke	ngoobe	yanbah	perah	aworko	yanbah	yarra moonyin.
122. Long time ago.	konding indo	thalloom bo	wooroo wooroo wabingo	rowama	a, woth, on	yatcharah	moony ountoon.
123. Yesterday	karro ko	kooroo lo	birree gool	lemootminjah	a, nunba	birregool	balloloom.
124. To-morrow	warmbe	kooroo lo	birringah	salmoorah	o, ng	birringah	marboono.
125. Rainbow	mondarn burra	keegoin	—	bolpah	o, yuro	—	karlewa.
126. Wind	yurto —	kooreen	koobeen	olwarah	e, thung	koobeen	boorun.
127. Falling star	pulle bikka ngunga	boong meen	booringo jinbe	kanda	a, roore	jinbe booringo	
128. Carpet-snake.	piddaroo	choombarl	kooreemah	ongah	al, kin	kooreemah	wongi.
129. Black snake	toopoo ngarl kika.	toongoon	thung eer	ombalah	a, loor	kurthulbun	mooloo.
130. Death adder	numbo nineyah	tarm been	bartimo	—	a, joōl	—	monulgum.
131. Iguana	burma thukoloo	wirregah	yang oolah	roonjurah	goo, thil	yang, o, lah	—
132. Turtle	boomalla booka	ngoonah	moyah gutha	betorgah	ing, o	moya gutha	milbe.
133. Black duck	mingarra	warrah di	karrabah	orocka	o, noo, gi	karrabah	gnah.
134. Whistling duck.	multa	—	ngulla wal	cherrechur	a, mirre	wallatho	nulbar.
135. Diver or darter.	bowen indeja	koinboor	yalke	tareh	a, wathal	yalke	guttunda.
136. Pelican	ngunkaroo	—	thalko boon	arthoorah	athooro	thoong allinje *and* thoong aberry.	goolooluu.
137. Crow	kurkoo	wargun	thoonga berry	gwa wah	atha	warmoorine	—

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.	Saxby River, Mycoolon.	Burnett and Wide Bay, Goonine.
138. Brown hawk	wharkoo ..	boogah jaggee ..	walbin garrah ..	koorageja ..	oromoko ..	kitch a berry ..	—
139. Eaglehawk	warreko ..	ngum gah ..	koore thilla ..	tooragutha ..	oromoi ..	janna urgah ..	bootha.
140. Pigeon ..	putookah ..	bar bumgi ..	booran booran ..	apenah	airjil	boowally ..	woonkullun.
141. Horse ..	walpa litcha ..	ngah	yarramunnah ..	tyerah	thiary	warna, na ..	yarraman
142. Gun ..	murkindo ..	beel	bully bully ..	bully bully ..	burra, peewoh	kooloomboro ..	revoluer - berrelan.
143. Axe ..	toomeyah ..	wokarrah ..	juko doongah ..	pairah	joolkoro ..	juko doongah ..	bulla deel.
144. House ..	koonde	nghorrah ..	goobo	rawyah	goongarry ..	coobo	durah.
145. Thunder ..	birndee ..	boorroomgi ..	yanberry ..	mallaoeka ..	opoolpy ..	barringo ..	booroomgine.
146. Lightning ..	meendee ..	munongi ..	boonchilly ..	chilla	ootha	yanburry ..	tulberalbe.
147. Rain ..	mukkarrah ..	gooloon ..	woonjone ..	jane woonja ..	og, no	woon jone ..	eurong.
148. Red (colour)	ngarl irka ..	morroomorroo ..	batha batha rug gin	— ..	o, neel	barroul ..	butha butha.
149. Blue ..	ngoolya binna ..	goroo		boolpol	ok, yo	marchin ..	bookun.
150. Green ..	noomba irka ..	karra bun ..	gilchun ..	kooina	atchootcho ..	gilchun ..	boowon.
151. Black ..	kook irka ..	kooreo	marchin ..	boolpah ..	okyo	marchin ..	bookin.
152. White ..	boota	—	boolbo	poeerah ..	eral	boonammo ..	bootha.
153. Smoke ..	bopolla borroo ..	joom	koomirre ..	ooekna	okon	koo, merry ..	woloi.
154. Hail ..	wurloo	wardee	—	ale acknia ..	—	oorg boogerry	—
155. One (1) ..	ngitcha ..	karroogun ..	kooroi	nooilah	apul	wonka ..	karleme.
156. Two (2) ..	bulla	bullaree	bullagarrah ..	gooilah	yirnpa ..	bullagarrah ..	bulla.
157. Three (3) ..	bulla ngitcha ..	bullaree karroogun	mathingoolah ..	ooringah ..	arulko ..	goobarrah ..	bupoorapa.
158. Four (4) ..	bulla bulla ..	bullaree bullaree	goobarrah ..	waka	arbunjy ..	bullargarrah, bullargarrah	goore kunda.
159. Five (5) ..	yenta mirra ..	— ..	— ..	yoorooka ..	arbunjy ..	— ..	dargilnool.

APPENDIX I.—VOCABULARY OF ABORIGINAL WORDS—*continued.*

English.	Darling River, Bourke, N.S.W.	N. S. Wales, Bellinger River.	G. of Carpentaria, Myappe, Lower Flinders.	G. of Carpentaria, Gilbert River.	Mitchell River, Koogominny.*	Saxby River, Mycoolon.†	Burnett and Wide Bay, Goonine.
160. A good many	ngoolatta bulla bulla	woomargah ..	gootcholoo ..	walkoorah ..	ameengum ..	gootchalo ..	
161. A round ball	— ..	toomby.. ..	ngoordoo ..	naljah	— ..	ballanbo ..	wonto.
162. White fellow	— ..	yerallee ..	barrago ..	oinyah	— ..	— ..	muthar.
163. White woman	— ..	wygoomun ..	bunyah.. ..	banber oinyah..	— ..	— ..	keen.
164. To drink with the hand	— ..	malarng ngumbe	malla roongo ..	ooranda ..	— ..	— ..	pirre thugga.
165. To steal ..	— ..	worroo goomung	bargarribo ..	walangoonda ..	— ..	— ..	crammer, ? woora.
166. To call out	— ..	kine garling ..	barringo ..	chaminda ..	— ..	— ..	gunkulewa.

* Language of this tribe called *akoonkool;* sub-tribe, *jimmy;* locality, north of Palmer River, Queensland.

† Language of Mycoolon nearly similar to Lower Flinders Myappe, only put down to show the variations; the Mycoolon words were given by a more intelligent and reliable black than the Myappe. "Hector," the former (Mycoolon), reared up with whites. "Jacky," the Myappe, was stupid and hard to understand.

APPENDIX II.

Remarks on the Class Systems collected by Mr. Palmer.

By A. W. Howitt, F.L.S.

The class divisions which Mr. Palmer has collected are some of the links of a chain which extends across the Australian continent, binding together the various Australian aboriginal communities. The connection of these different class systems with each other is not at first sight apparent, unless when, as in the cases given by Mr. Palmer, they are accompanied by direct evidence from native informants that two or more of them are regarded as the equivalents of each other. When, however, a greater number of class systems are collected and compared systematically with each other, their connection becomes more evident, and the dialectic identity or the equivalence of names may often be established.

In order to show this, as regards the classes given by Mr. Palmer, I propose to interpolate in his series certain class-systems which I have obtained from other correspondents, and thus to render the chain somewhat more connected and complete :—

No. 1.—*Kamilaroi Tribe.*[1]

Two primary classes.	Four sub-classes.	Totem names.
Dilbi	Mŭri	Kangaroo, Opossum, Bandicoot, Iguana, Black Duck, Eagle-hawk, &c.
	Kŭbi	
Kŭpathin	Ipai	Emu, Carpet-Snake, Black Snake, Red Kangaroo, Frog, Codfish, Wallaroo, &c.
	Kumbo	

[1] Established by the inquiries of Mr. C. E. Doyle, late of Kunopia, N.S.W.

No. 2.—*Kiabara Tribe.*[1]

South of Maryborough, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
Dilebi (Flood water)	Baring (Turtle) ..	?
	Turowine (Bat) ..	
Cubatine (Lightning)	Bulcoin (Carpet-Snake)	?
	Bundah (Native Cat)	

No. 3.—*Kŭinmŭrbŭra Tribe.*[2]

Near Rockhampton, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
Yŭngerū	Kŭrpal	Eaglehawk.
	Kŭialla	Laughing Jackass.
Witterū	Karilbŭra	Sand Wallaby, Clearwater, Curlew, Hawk.
	Mŭnal	

[1] Communicated by Mr. J. Brooke, N. M. Police, Queensland.
[2] Communicated by Mr. W. H. Flowers, Rockhampton, Queensland.

No. 4.—*Wakelbŭra Tribe.*[1]

Elgin Downs, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
Mallera	Kūrgila	Plain Turkey, Small Bee, Opossum, Kangaroo.
	Banbe	
Wūthera	Wūngo	Emu, Carpet-Snake, Large Bee, Black Duck, Wallaroo.
	Obū	

No. 5.—*Balonne River Tribe.*[2]

Two primary classes.	Four sub-classes.	Totem names.
———	Urgilla	———
	Unburri	
———	Wūngo	———
	Obur	

No. 6.—*Ringa-Ringa Tribe.*[3]

Burke River, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
———	Goorkela	Turkey, Emu, Iguana.
	Bunbury	
———	Wonko	Carpet-Snake, Death Adder, Native Cat, Kangaroo, Rat.
	Coobooroo	

[1] Communicated by Mr. J. C. Muirhead, Queensland.
[2] See p. 306, *ante*.
[3] Communicated by Mr. Jno. Lett, Burke River, Queensland.

No. 7.—*Kūnandabŭri Tribe.*[1]

Cooper's Creek, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
Yŭngo	——— / ———	Kangaroo, Iguana, Dog, Carpet-Snake, Crow, Frog, Rat, &c.
Mattara	——— / ———	Emu, Opossum, Brown Snake, Frilled Lizard, &c.

No. 8.—*Dieri Tribe.*[2]

East Side, Lake Eyre, South Australia.

Two primary classes.	Four sub-classes.	Totem names.
Kararū	——— / ———	Kangaroo, Carpet-Snake, Native Companion, Rat, Frog, Crow, &c.
Matteri	——— / ———	Eaglehawk, Emu, Dog, Lizard, Cormorant, &c.

No. 9.—*Ta-ta-thi Tribe.*[3]

Riverina, New South Wales.

Two primary classes.	Four sub-classes.	Totem names.
Kilpara	——— / ———	Hawk, Lizard, &c.
Mūquara	——— / ———	Emu, Duck, Bush Rat, &c.

Mr. Cameron states that Kilpara is the equivalent of Kubi-Muri, and Mūquara of Ipai-Kumbo. The next tribe to the north-eastward of the Ta-ta-thi was one having the Kamilaroi class names.

[1] Communicated by Mr. W. O'Donnell, Cooper's Creek, Queensland.
[2] Communicated by the Rev. H. Vogelsang, Kopperamana, South Australia.
[3] Communicated by Mr. A. L. P. Cameron, Mulurulu, N.S.W.

No. 10.—*Yerrunthully Tribe.*[1]

Flinders River, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
———	Koorgielah.. ..	Plain Turkey, Native Dog, Carpet-Snake.
	Bunbury	
———	Woonko	Emu, Brown Snake, Whistling Duck.
	Coobaroo	

No. 11.—*Mycoolon Tribe.*[1]

Flinders River, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
———	(M) Jimalingo ..	Plain Turkey, Eaglehawk, Whistling Duck.
	(F) Goothamungo	
	(M) Yowingo ..	
	(F) Carburungo ..	
———	(M) Bathingo ..	Carpet-Snake, Iguana, Black Duck.
	(F) Munjingo ..	
	(M) Marringo ..	
	(F) Ngarran-ngungo	

No. 12.—*Koogo-Bathy Tribe.*[2]

Mitchell River, Queensland.

Two primary classes.	Four sub-classes.	Totem names.
———	Barry	Yam.
	Mungillo	Grass.
———	Ararey	Carpet-Snake.
	Jury	Fruit.

[1] See p. 302, *ante.*

[2] See p. 303, *ante.*

No. 13.—*Kombinegherry Tribe.*[1]

Bellinger River, New South Wales.

Two primary classes.	Four sub-classes.	Totem names.
———	(M) Kurbo ..	———
	(F) Kooran ..	
	(M) Marro ..	
	(F) Kurgan ..	
———	———	———
———	(M) Wirro.. ..	———
	(F) Wingan ..	
	(M) Wombo ..	
	( ) Wirrikin ..	

The connection and equivalence of these class systems is provisionally established by—

(1) The direct testimony of native informants, as in Nos. 1 and 9, and 11 and 12.

(2) The identity or dialectic variations of the class names in neighbouring or even distant tribes.

(3) The substantial identity of the groups of totem names which represent the primary classes.

These totem names have been given in their English forms for more easy comparison.

Where the primary classes are not given it may either be that they have become obsolete in that tribe, or that they have been overlooked or not ascertained by my correspondents. I have cases before me supporting both these possibilities. The class divisions of the Narrinyeri tribe in South Australia only now consist of a number of localised totems; the primary classes of the Kamilaroi were only traced out by special inquiries.

Where no sub-classes are recorded it may be either that they have never come into existence, or that they have been lost, as have been even the totem names in some cases. Such an instance is that of the Woiworŭng tribe of Victoria, whose class system consisted of the primary classes and one totem, five other totems together with it having undergone apotheosis as stars.

[1] By Mr. E. Palmer (see p. 304).

Further insight into the organisation of these class systems will be obtained by comparing their rules of marriage and descent, as regards the classes. By tabulating them in the order just given their similarities and dissimilarities can be easily remarked, and the changes which certain allied systems have undergone will more clearly show themselves.

Kamilaroi Tribe.

Male	Marries	Children are
Muri	Butha	Ipai and Ipatha.
Kubi	Ipatha	Kumbo and Butha.
Ipai	Kubitha	Muri and Matha.
Kumbo	Matha	Kubi and Kubitha.

Kiabara Tribe.

Male	Marries	Children are
Baring..	Bundah	Turowine.
Turowine	Balcoin	Baring.
Bulcoin	Turowine	Bundah.
Bundah	Baring	Bulcoin.

Kuin-Murbura Tribe.

Male	Marries	Children are
Kurpal	Karilburan	Munal and Munalan.
Kuialla	Munalan	Karilbura and Karilburan.
Karilbura	Kurpalan	Kuialla and Kuiallan.
Munal	Kuiallan	Kurpal and Kurpalan.

Wakelbura Tribe.

Male	Marries	Children are
Kurgila	Obuan	Wungo and Wungoan.
Banbe	Wungoan	Obu and Obuan.
Wungo	Banbean	Kurgila and Kurgilan.
Obu	Kurgilan	Banbe and Banbean.

Kunandaburi Tribe.

Male	Marries	Children are
Yungo	Mattara	Mattara.
Muttara	Yungo	Yungo.

Dièri Tribe.

Male	Marries	Children are
Kararu	Matteri	Matteri.
Matteri	Kararu	Kararu.

Ta-ta-thi Tribe.

Male	Marries	Children are
Kilpara	Muquara	Muquara.
Muquara	Kilpara	Kilpara.

Yerrunthully Tribe.

Male	Marries	Children are
Koorgielah	Coobaroo	Woonco.
Bunburry	Woonco	Coobaroo.
Woonco	Bunburry	Koorgielah.
Coobaroo	Koorgielah	Bunburry.

Mycoolon Tribe.

Male	Marries	Children are
Jimalingo	Ngaran-ngungo ..	Yowingo and Carburungo.
Yowingo	Munjingo .. .	Jimalingo and Goothamunga.
Bathingo	Carburungo	Marringo and Ngaran-ngungo.
Marringo	Goothamungo ..	Bathingo and Munjingo.

Koogo-Bathy Tribe.

Male	Marries	Children are
Barry	Jury	Ararey.
Munjilly	Ararey	Jury.
Ararey..	Mungilly	Barry.
Jury	Barry..	Mungilly.

Kombinegherry Tribe.

Male	Marries	Children are
Kurbo..	Wirrikin	Wirro and Wingan.
Marro	Wongan	Wombo and Wirrikin.
Wirro	Kurgan	Kombo and Kooran.
Wombo	Kooran	Marro and Kurgan.

The first thing that shows itself in examining the preceding tables is the evident connection of the Kiabara and Kamilaroi class systems through the identity of their primary classes, although the sub-classes are so different. Mr. Jocelyn Brooke's information is also valuable as affording a means of substantiating the conjecture which arises out of the rules of marriage and descent of the Kiabara and the aboriginal diagram for ascertain-

ing a child class name, that descent runs in the male line. This is all the more important as in the Kamilaroi classes it is uterine.

A further examination of the tabulated class systems shows that there are three several cases to be considered. The first case is that of the primary classes, and for this the Kunandaburi may serve for a typical example, for it is this community which in its existing customs has so far proved to stand nearest to the theoretical divided commune. The second case is that of the sub-classes which arise out of the division of their primaries. For this the well-known Kamilaroi class divisions serve as an example. In this aspect it is well to note the advance which has been made by the Kiabara in adapting the rule of descent through the male line to a class system which represents that of the Kamilaroi with only slight variations in its subdivisions. The third case is that of the totem names. That these also influence marriage and descent is well known, but the manner in which it is done is not shown in the tabulated systems. In order to illustrate this I now give the rules of marriage and descent of the Kuin-Murbura, for which I am indebted to the kindness of Mr. W. H. Flower, who has in working it out rendered it all the more valuable by the addition of the sub-class names.

Kuin-Murbura Tribe.

Male	Marries	Children are
Kurpal = eaglehawk..	*Karilburan* = hawk ..	*Munal* = hawk.
Kurpal = laughing jackass	*Karilburan* = curlew ..	*Munal* = curlew.
Kuialla = eaglehawk..	*Munalan* = hawk ..	*Karilbura* = hawk.
Kuialla = laughing jackass	*Munalan* = curlew ..	*Karlibura* = curlew.
Karilbura = curlew ..	*Kurpalan* = laughing jackass	*Kuialla* = laughing jackass.
Karilbura = clear water	*Kurpalan* = eaglehawk	*Kuialla* = eaglehawk.
Karilbura = wallaby ..	*Kurpalan* = laughing jackass	*Kuialla* = laughing jackass.
Karilbura = hawk ..	*Kurpalan* = eaglehawk	*Kuialla* = eaglehawk.
Munal = curlew ..	*Kuiallan* = laughing jackass	*Kurpal* = laughing jackass.
Munal = clearwater..	*Kuiallan* = eaglehawk	*Kurpal* = eaglehawk.
Munal = wallaby ..	*Kuiallan* = laughing jackass	*Kurpal* = laughing jackass.
Munal = hawk ..	*Kuiallan* = eaglehawk	*Kurpal* = eaglehawk.

This shows clearly that while in the sub-classes the modified form of uterine descent is followed, in the totems the old direct line runs as in the primary classes themselves.

I now turn to the interesting features brought out by Mr. Palmer's facts.

A very unusual character is brought out in the Mycoolon classes by the male and female names of each sub-class being different, and not, as is usually the case, the same, or formed by the addition of a feminine affix to the male name. In the Kombinegherry classes there is this same peculiarity, and it may therefore prove to be more common than I have hitherto thought it to be.

This difference in the male and female class names tends to confuse the observer as to the line of descent, but it can be clearly made out by a working formula, if I may call it so, which I have found invaluable in these inquiries, and which I have already made use of in a communication to the Anthropological Institute of Great Britain.

Calling the primary classes A and B and the sub-classes 1, 2, 3, 4, a simple diagram then discloses at once by inspection in which line descent runs. Thus in this case the Mycoolon classes placed in their intermarrying couplets will be as follows:—

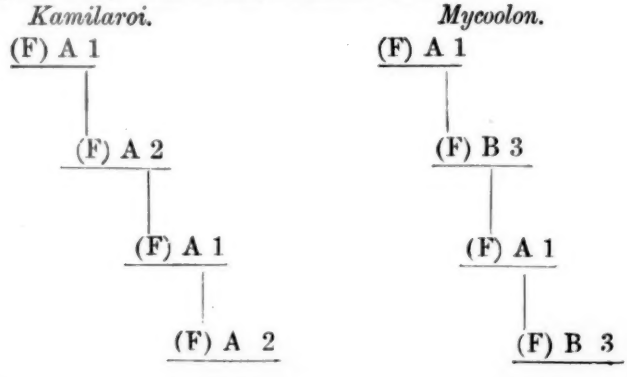
Jimalingo, Yowingo } = A 1 and A 2.
Bathingo, Marringo } = B 3 and B 4.

I have here also discarded the female names for simplicity.

Treating the Kamilaroi classes in the same way, we have:—

Muri, Kubi } = A 1 and A 2.
Ipai, Kumbo } = B 3 and B 4.

We know that descent runs in the female line in the Kamilaroi classes, and by noting the descent from mother to daughter in each of the two cases we may learn whether the result is the same, or if not, wherein the difference lies.



This shows at once that in the Kamilaroi system the daughter takes the name of her mother's primary class, but in the complementary subdivision to that of the mother. In the Mycoolon system the daughter takes the name of her father's primary class, but in the complementary subdivision to that of the father. In other words, in the Kamilaroi system descent is uterine, while in the Mycoolon system it is agnatic.

The peculiarity to which Mr. Palmer directs attention in the Mycoolon classes is a result incident to the arrangement of the sub-classes when under the influence of agnatic descent: the girl is of the same class name as her mother's mother.

In the Kamilaroi system, under the influence of uterine descent, the son is of the same class as his father's father.

The evidence of Mr. Palmer's native informant that the Koogobathi class system is the equivalent of that of the Mycoolon is all the more important that the two tribes are locally far apart, and also because of the dissimilarity in the systems themselves, and because in one the line of descent is uterine, and in the other agnatic.

The identification of the class system of the Mackay tribe with that of the tribe at Rockhampton is also important, yet I think that it requires further investigation, for according to information which I have received, the names Yungaroo and Wootaroo are said to be the equivalents of the Wakelbura primary classes Mallera and Wuthera, which I find to extend in dialectic, and other variations from Mackay, in Queensland, to at least Port Augusta, in South Australia. The names Gooleta and Gooberoo, I cannot doubt, are forms of these sub-classes, which are given in the preceding table as Obū, Coobooroo, and Coobaroo. It is to be hoped that more information on this head may turn up, and thus add another link to a chain which is slowly but surely becoming evident, and which binds the aboriginal communities of Australia into a perfect whole.

The class systems which Mr. Palmer has collected, and those which I added for illustration, show a process of advance in the idea of descent. Whatever may have been the causes at work, they do not appear, and in order to learn something of their nature it will be necessary to carefully work out the customs, common and uncommon, of the tribes having these class divisions. In those customs I anticipate we may find at least traces of the ideas which have led to changes affecting not only the class systems, but through them the systems of relationship which rest upon them.

Discussion.

Mr. H. O. Forbes remarked that the message-sticks to which reference had been made in Mr. Palmer's paper might possibly have no other use than that of simple reminders to the bearer, and have no absolute meaning, just as in Sumatra he had often had messengers come to him bringing messages from a distance, who, having been charged with many items of intelligence, were furnished with a bagful of pebbles as remembrancers. On proceeding to deliver the message the bearer commenced, "Article the first," at the same moment withdrawing one of the pebbles from the bag and placing it on the ground before him; then "Article number two," and so on till, having exhausted the contents of the bag, he would remark, "And there are no more." It was possible, therefore, that the Australians' notches and marks might have a similar function to perform.

In Macluer Inlet, in N. New Guinea, he had met with apparently authentic reports of pictures, said to be representations of human hands, bodies, &c., engraved on the cliffs at the extreme end of the Inlet; but of what nature they really were he had been able to obtain little information.

The Australian system of totems, he said, was very interesting and difficult to understand; but the prohibition of certain totems and same-name-relatives to intermarry could not, he thought, be due to any definite intention—arrivable at only after close observation and generalisation—in their minds of preventing the evils arising from the mixture of too closely related blood. The same practice, in a less marked degree, was observed by him in Sumatra, where marriage between villagers of the same *Marga* (a regional subdivision, consisting of many villages, either situated near together or widely separated) is forbidden; as well as in the interior of the eastern part of the island of Timor, of which he hoped to give some account in a paper to be presented to the Institute at an early date.

Mr. Berdoe inquired if it were actually the fact that the suckling of puppies by the women of the tribe described was a common practice? He would be glad to know if any other Australian traveller could confirm the statement. Dr. Lauder Lindsay, in his work on "Mind in the Lower Animals," had referred to the practice as existing in some places, but, as far as he remembered, had not given any clue as to where the custom obtained.

The President and Mr. Park Harrison also joined in the discussion.

OLD SCANDINAVIAN CIVILISATION *among the* MODERN ESQUIMAUX.

By E. B. TYLOR, D.C.L., F.R.S., V.P. Anthrop. Inst.

[WITH PLATES VI AND VII.]

(Read June 12th, 1883.)

THE Esquimaux race, in the state in which they became known to the civilised world in modern times, are usually regarded by anthropologists as stone-age savages, representing an early stage in the development of civilisation. In many respects this may be right, as the Esquimaux tribes from Greenland to Behrings Straits were undoubtedly found using stone implements and living as rude hunters and fishers. My present object, however, is to call attention to the fact that some of their arts and customs cannot be treated as of native development, or as properly belonging to savage life. On the contrary, they seem to be of civilised origin, and probably to have been borrowed from the Scandinavians during the long period when the Esquimaux were in intercourse with them, between A.D. 1000–1500.

Some details of the condition of the Esquimaux when they first came in contact with the Europeans may be gained from the passages in old Scandinavian chronicles referring to the Skrällings, or dwarfs (Old Norse *skräl* = little), as the usual opinion appears quite reasonable that these little people must have been Esquimaux, although met with so far south of the modern habitat of the race. The sources of information are the sagas of Eirek the Red and of Thorfinn Karlsefni, published wholly or partly in various collections, and to be found conveniently in the "Antiquitates Americanæ" (Copenhagen, 1837). Eirek's discovery of Greenland was about A.D. 982, but no mention is made of natives; indeed, it has been thought that the Esquimaux may not have migrated so early into that inclement region (see Waitz, "Anthropologie," Vol. III, pp. 300, 303). It was in A.D. 1004 that Thorvald's coasting expedition met with the Skrällings far south, at Kjalarnes (Keel-ness), which is considered to be Cape Cod. In this New England district they evidently formed a considerable population. The name given them by the Northmen to indicate their small stature, as well as the description of their dark colour, ugly hair, great eyes, and broad cheekbones, fit with the build and features of the Esquimaux rather than of other American tribes. That they brought furs to barter, and did not understand iron hatchets, proves nothing, as this might have been true of Algonquins or other of the so-called North American Indians. But the Skrällings had peculiarities of culture which are characteristic of the Esquimaux, but not of the neighbouring tribes. They paddled in skin canoes (*húdh-keipr*), apparently each holding three men;

they hurled their spears with war-slings (*val-slöngva*), a term which would perfectly apply to the wooden spear-throwers; they seem to have had the large ball-like blown-skin floats attached to their harpoons; some of them carried vessels with a mixture of marrow and blood for provision, a habit which agrees with the eating of raw meat which has remained common among the Esquimaux till modern times, and to which, indeed, they owe their name of *Eskimantsic* or "raw-flesh eaters," given them by the Abenaki Indians, and in the mouths of the French colonists passing into *Esquimaux*.

The old Scandinavian colonies in Greenland existed for centuries side by side with a nomad Esquimaux population. But the white men dwindled, and at some time in the fifteenth century, when intercourse ceased with Europe, their settlements probably ceased to exist. Doubtless the Scandinavians were partly killed off by the Esquimaux, but there is also reason to believe that some of the last survivors became merged in the Esquimaux population. This probability has been connected, not unreasonably, with the occurrence among the natives of some families whose larger build and more European feature distinguish them from the ordinary Esquimaux.

It was early in the eighteenth century that the Scandinavian missionaries reopened the long-dropped intercourse with Greenland.[1] The natives had by no means forgotten the old times when the Northmen had lived in their land; they called them *Kablunat*, a name they still give to Europeans. It seems even as if they remembered their own Old Norse name of *Skrälling*, for they sometimes called themselves *Karalit* (sing. *Karalek*), which they said was not a native word, but a name given to them by the former Christians, and as Cranz reasonably argues, this is the broken-down form which the Norse word *Skrälling* would naturally assume in an Esquimaux mouth (Cranz, "Historie von Groenland," Barby, 1765, pp. 331, 337). The modern Greenlanders have among their traditions, collected by Dr. Rink in his "Eskimoiske Eventyr og Sagn" (Copenhagen, 1866), several which record their recollections of the old Northmen, and which give an idea of the quarrels, murders, and retaliations between the two races, which were one main cause of the extinction of the white men. Our present business is to consider the condition of the Greenlanders as the Danish missionaries found them in the eighteenth century, and to examine how far their then arts, customs, &c., may be considered as adopted from the mediæval Scandinavians. The chief descriptions are:—1. Hans Egede,

[1] The voyages of Frobisher and Lindenau need not be taken account of, as probably not having had any effect on the condition of the Esquimaux.

"Det Gamle Grønlands nye Perlustration eller Naturel-Historie," Copenhagen, 1741; (the English translation published under the title "A Description of Greenland, by Hans Egede," London, 1818, is very incorrect, and only gives fragments of the illustrations). 2. David Cranz, "Historie von Groenland," Barby, 1765.

As the most striking illustration of ancient European influence on the Greenlanders, may be noticed the dress which the modern Europeans found them wearing. Fig. 1 (Plate VI), representing part of a native group of men and women playing football, is taken from Egede. Like other engravings of last century books of travel, its figures, attitudes, and dress are somewhat conventionalised in European style; nevertheless, for the present argument, it is preferable to better modern drawings, and its details can be compared with Egede's careful description of native costume, which may be relied on for the particulars of garments worn when he first arrived in the country, for he mentions the linen, cloth, and new fashions since introduced by the missionaries and traders. Egede's account (cap. xi) runs as follows:—

"*On the Greenlanders' Costume.*—Their garments consist mostly of reindeer-skin, sealskin, and also bird-skins, very neatly dressed and fashioned. The men-folks' costume is of this model; the tunic is like a jacket with a cowl, which serves them as a hood. It reaches nearly down to the knees. Some have a lappet before and behind. Their breeches are quite small, and reach not entirely over the loins, which is for convenience of getting in and out of their small boats. Next the body they have not linen, but turn in the hair of their jackets to be the warmer. Outside the jacket they have a peculiar sea-jacket, which is of sealskin with the hair stripped off, and will keep the water out when they go to sea in their small boats. Between the sea-jacket and the innermost jacket they wear either a linen shirt, or in default one of dressed sealskin, which also helps to keep the water from the inner jacket. They have besides, jackets or shirts of striped stuff or linen, as well as of blue or red cloth, but made up after their own fashion, which they buy from our people or the Dutch, and parade in them when they are in the country: likewise breeches of the same sort. Their hose or stockings are made of reindeer or sealskin, but they now mostly use woollen hose, white, blue, and red, which they also get by trade with us. Shoes and boots they have of black, gold, or red dressed and tanned sealskin, very neatly sewed, without heels, but gathered before and behind, and they fit very well on the legs and feet. The women's costume differs from the men's only in being wide and high on the shoulders, with large high hoods. The married women with

children have their jackets especially wide and roomy, that they may carry their small children within on their backs, and they use no other cradle or swaddling-clothes for them. They have two pairs of drawers, one pair inside reaching over the thigh. These they never take off, but lie with them on at night; but the outside breeches reach to the knees. These they are not wont to wear in summer, but only in winter when they are out, not when they are in the house, for they pull them off as soon as they come in. They have double jackets, one inside next the body, of reindeer-skin, with the hair turned inward, and another outside, which is also of thin-haired and smart-coloured reindeer-skin, or, in lack of this, of sealskin, edged and bordered with white within the seams, which looks smart. Their shoes are like the men-folks, but their boots have wide tops like our men's boots."

Cranz's account (Book III, Part 1), published some years later, mostly follows Egede, but adds a few points of detail. He notices that the tunic or jacket is sewn on all sides like a monk's robe, so that they thrust in their arms first and then pull the garment over their heads like a shirt. He speaks of the bird-skin jackets being worn as shirts, with the feathers inside, and says that the thin-haired reindeer over-jackets had now become so scarce that only the richest women could parade them. The stockings, he says, are of the skin of seal-fœtus, and the heelless shoes of smooth black tanned seal leather, drawn together above with a thong drawn through the thick sole. Well-to-do people had come to wear woollen stockings, hose, and caps. Fig. 2, Plate VI, is reduced from the engraving in Cranz (Plate III). The more modern Greenland dress, traceable from this early form with some modification, is depicted in Rink's work above mentioned. (English versions of Rink's writings have been edited by Robert Brown, under titles "Tales and Traditions of the Eskimo," London, 1875, and "Danish Greenland," London, 1877.)

It is evident that this costume differed utterly from the rude fur cloaks of the Fuegians in the Antarctic cold region, and indeed from any savage or low barbaric American dress. On the other hand, their coats with hoods, shirts, breeches, stockings, shoes, and boots, form, taken together, a mediæval European costume. The inference is here considered to be that the Greenlanders, early in the eighteenth century, were wearing the costume of the old Scandinavians, in which, however, for want of woollen and linen, the material throughout had come to be skin, fur, &c., and the fashion had been in some measure adapted to suit the peculiar conditions of Polar life. It is in part through the use of such highly-developed clothing, that the Esquimaux have been enabled to live in comparative comfort in their rigorous climate.

Another appliance by which the Esquimaux were enabled to live in some comfort in the Polar regions was their blubber lamp. Wanting trees, and requiring the scanty supply of drift-wood for implements and furniture, they had practically no fuel or means of lighting except fat and oil, especially seal-blubber, burnt in the lamps in question. The family compartments of a Greenland house are drawn and described by Cranz, each provided with its half-moon-shaped potstone lamp, with a wooden vessel beneath it to catch the overflowing oil, placed on a low wooden stool, and with a potstone kettle hung over it by four cords from the roof, in which all the cooking was done. The lamp was fed with blubber or train oil, and along its straight side moss, rubbed small, served for a wick, which burned so brightly that with so many lamps the house was not only lighted but warmed. Fig. 1, Plate VII, shows an Esquimaux lamp of potstone, now exhibited by Dr. Rae, brought home by him from Repulse Bay, while fig. 2, Plate VII, is taken from Nordenskjöld's "Voyage of the Vega," Vol. II, p. 22, being in use among the Chukchi of North-East Asia, the western limit to which Esquimaux life has spread. The wooden foot and drip-vessel mentioned by Cranz are drawn in Fig. 3, and the curved lamp-trimmer belongs to both. Now no lamps of this kind—in fact no lamps at all—were known to the indigenes of America, not even to the comparatively cultured Mexicans and Peruvians. On the other hand, open dish oil lamps, the same in principle as those of the Esquimaux, may be traced all across Europe and Asia. The collection of General Pitt Rivers contains some specimens, and I exhibit a modern North Italian brass one, bought within a few weeks in the market of Pallanza. In Scotland, made in iron, they were till lately the regular house-lamp, under the name of *crusie* (French *creuset*). They are often made with two dishes, the lower one to catch drippings of oil, as is shown[1] in fig. 4, Plate VII. It is interesting to notice the name *collie* given to these lamps in Shetland (see A. Mitchell, "The Past in the Present," p. 101). This is apparently the old Scandinavian word *kola*, "a small flat open lamp." The word is to be found in the Cleasby-Vigfusson "Icelandic Dictionary," with passages cited—among them one from the Old Laws of Norway ("Norges Gamle Love," Vol. II, p. 247), which is especially to the present purpose. It is a law that men are to have lights either in lanterns, or in *kolas* of stone or brass (*eda i kolum a stæni eda æri*), or in lamps. Now the Greenlanders' name for their lamp is *kollek*, remarkably corresponding with

[2] The figure is taken from a specimen presented by Dr. Garson to the University Museum at Oxford, and intended to form one of the series of lamps in the Pitt Rivers collection.

the Scandinavian term. This was well known to Egede, who noticed among words which he thought the Greenlanders had borrowed from the Old Norsemen, "*kollek*, a lamp, which in Norse is called a *kolle*." If this etymology is sound it much strengthens the present argument, but it is necessary to mention that an Esquimaux dictionary has a different etymology for the word *kollek*,[1] which if true would negative the notion of its Scandinavian derivation.[2] But etymology apart, the fact remains that the Greenlanders doubtless saw in the houses of the old Scandinavians lamps of the simple dish kind, by imitating which and substituting moss for the linen fibre wick they would obtain Esquimaux lamps. It should be noticed that kettles, &c., carved out of the steatite known to us as potstone, or *lapis ollaris*, were well known to the Scandinavians, who called this stone *talg-sten* (tallow-stone) (see Hylten-Cavallius, "Warend och Wirdarne," Part II, p. 190). It is thus likely that the Greenlanders may have learnt from the Scandinavians the art of working potstone both into kettles and lamps. If so, the use of these would spread from Greenland over the whole Esquimaux district. It is worth while to notice that Dall's examination of the shell-heaps left by tribes more or less Esquimaux in the Aleutian Islands, seems to show that in the earliest periods lamps were unknown to these tribes, but eventually came into use, rude in pattern, but on the principle of the Esquimaux lamps (W. H. Dall, in "Contributions to North American Ethnology," Vol. I, Washington, 1877).

It remains to call attention to miscellaneous points of culture among the Greenland Esquimaux, which likewise look as though adopted from the old Scandinavians. Few habits are more notable among the early Icelanders than their habit of reciting satirical verses against one another, which led to such murderous quarrels that laws were made punishing makers of "nith-songs" with exile. When the Scandinavian missionaries came, in the eighteenth century, to Greenland, they found in full vogue the custom of singing satirical songs, long almost discon-

[1] Erdmann, *Eskimoisches Wörterbuch*; *kollek*, the uppermost over anything; *kollit*, a lamp, because this in the Esquimaux house is raised above the floor; small lamps which stand quite on the ground are also called *allek* (*i.e.*, undermost). Among the other Greenland words which Egede claims as borrowed from the Northmen is *koanek*, the plant angelica, which in Norse is *qvaun*; and *nisa*, porpoise, Norse *nise*.

[2] Mr. G. Brown Goode, United States Commissioner at the International Fisheries Exhibition, who was present when the paper was read, has since communicated the fact that the Cape Cod fishermen, chiefly of English descent, used, till within the last fifty years, simple lamps of the kind here discussed, fed with dog-fish or shark oil; a few of these old lamps exist, and they are called *koil* or *kyle*, a word corresponding both to the Scandinavian and Esquimaux forms.

tinued in their own country. Egede describes the native singer accompanying himself by beating a drum, a circle of bystanders chanting the chorus. Of the songs thus performed the chief are satirical poems, and when one man has a grudge against another he will challenge him to a kind of duel of such songs, which is, so to speak, fought out before the assembly till one gives in. This was their common way of vengeance (Egede, cap. xv.; Cranz, p. 231). Rink gives a picture of a Greenlander singing a nith-song, and specimens of the songs themselves, as, for instance, one ridiculing a certain Kukouk, who was no good as a hunter, but wanted to make friends with the whites. It begins thus, the chorus alternating with the strophes:—

Bad little Kukouk, *Imakaiya haiyâ*,
(Chorus) *Imakaiya ha.*
He takes care of himself, *Imakaiya haiyâ*,
(Chorus) *Imakaiya ha.*
He wants to travel away from the land, *Imakaiya haiyâ*,
(Chorus) *Imakaiya ha.*
With a great great ship, *Imakaiya haiyâ*,
(Chorus) *Imakaiya ha.*
&c., &c., &c.

The resemblance of the custom of satirical songs was so self-evident to the Danes, that Rink actually calls them *nidvise*, the very term he would have used in describing the customs of his own Norse forefathers (Rink, "Eskimoiske Eventyr," Vol. II, p. 138; "Danish Greenland," p. 150).

It remains to quote from Egede what is by no means the weakest evidence in the present argument—his account of the Greenlanders' games. The young people, he says, have games or pastimes among them in the evening." They have a little piece of wood with a hole in one end, to which they attach by a thread a little pointed peg, and throw it up to catch the wood on the point in the hole. Now he who can twenty times running hit the hole and catch it on the pin has won, but he who cannot hit twenty times running has a black mark made on his face for every time he misses.[1] They have besides another game, which is nearly of the nature and purpose of cards and dice: namely, they have a little piece of wood pointed at one end with a peg in it. When they sit down to play, and each has staked what he thinks proper, one gives the aforesaid piece of wood a turn with his fingers, and whoever its end points to, he has won, and draws to himself all that the others have put down, at which they continue as long as they like. Ball-

[1] I learn from Mr. Vigfusson that the black mark on the loser's face still belongs to Scandinavian boys' games.

playing is their most usual sport, especially by moonlight, and they have two modes of playing. When they have divided into two parties, one casts the ball to another who is of his own party; those of the other party strive to get the ball from them, and thus it goes on by turns among them. The other mode of playing ball is that they set up two marks, 300 or 400 paces apart; dividing as before into two sides, they assemble in the middle between these goals, where they throw down the ball and kick it with their feet each toward his own goal. He who is quick on his legs and can get the ball before him, comes first to the goal and has won. Thus, they say, the souls of the dead play ball in heaven with a walrus' head, when the aurora is seen, which they hold to be the souls of the dead." (Egede, cap. xv; Cranz, Book III, Part 3). Here, then, we have four games. One is a simple kind of bilboquet, like our cup-and-ball played with the point only. One is gambling with a teetotum or revolving pointer. Of the two ball games, one is ordinary football; the other, where each side tries to get the ball from the other, is what in Old England was called hurling, and this correspondence appears still more in Egede's drawing, where the players are seen to be matched in pairs, one of each party, one laying hold of the other to prevent him from getting the ball to the goal (see Strutt, "Sports and Pastimes," *s.v.* "Hurling.") It will be agreed that the rude Esquimaux never could have invented for themselves this set of four Old World games. In all probability they learnt them from the Europeans during their four centuries of intercourse in the Middle Ages. Here I leave the subject for the present, trusting that further inquiry may separate more exactly the original Esquimaux culture from such effects of contact with the white men as are brought into notice in this paper.

Description of Plates VI and VII.

Plate VI.

Fig. 1. Group of Greenlanders playing football, showing the native dress. From Hans Egede, "Det Gamle Grønlands nye Perlustration, &c." (Copenhagen, 1741).

„ 2. Greenland man and woman, showing native dress. Reduced from Cranz's "Historie von Groenland" (Barby, 1765).

Plate VII.

„ 1. Esquimaux lamp of potstone, brought by Dr. John Rae from Repulse Bay. *a* side view of lamp; *b* top view of lamp; *c* section of lamp; *d* trimmer, also of potstone.

„ 2. Lamp of burned clay in use among the Chukchi of North-East Asia, brought home by Nordenskjöld. From the

"Voyage of the Vega," translated by G. A. Leslie (Macmillan, 1879). By permission of the publishers.

Fig. 3. Section of the Chukchi lamp, stand, and trimmer. From the same source. *a* the oil; *b* the moss wick; *c* the foot; *d* the basin under it; *e* the wooden trimmer-stick.

„ 4. Scotch dish oil-lamp, or *crusie*.

Discussion.

The President remarked that as this was the first occasion of Mr. Tylor's appearance at a meeting of the Institute since his appointment to the Curatorship of the Oxford Museum, he must offer the congratulations of the members of the Institute to that University, and express their earnest hope that this appointment, combined with the munificent gift of General Pitt Rivers's collection, might be the inauguration of a new era in the cultivation of anthropology in this country.

With regard to the subject of the paper, it was evident that there could be only three hypotheses as to the origin of the civilised customs among the Esquimaux which Mr. Tylor had described to the meeting. They must have been independently evolved, or they must have been derived from Europe or South Asia by way of Behrings Straits, or, as Mr. Tylor suggested, they were learned from the early Scandinavian settlers. Something might be urged in favour of each of these hypotheses, and therefore the subject before the meeting was an important one for discussion; its solution involved some of the principles lying at the root of this branch of anthropology.

The President also expressed the thanks of the meeting to Dr. Rae for kindly lending the Esquimaux lamp with which Mr. Tylor's paper was illustrated, and read a letter from that gentleman stating his great regret at not being able to be present at the meeting.

Mr. Walhouse observed that earthenware saucers, with a small peak and notch for receiving an oil-wick, closely resembling in shape and size the brass example from North Italy exhibited by Mr. Tylor, were commonly used all over Southern India as receptacles for oil-lights. They were used in houses, bazaars, temples, &c., usually placed in triangular niches in the walls. The same sort of little earthen platters were often found abundantly, along with other earthenware, in kistvean and prehistoric graves. Large brass lamps, with several notches for wicks round the rim, nearly resembling in general form Dr. Rae's Equimaux specimen, were also used in the temple services, as well as clusters of small brass saucers arranged on stands in diminishing circles; examples, the speaker thought, were to be seen in the India Museum.

Mr. Berdoe asked the author if he did not think it probable that the source of evolution of the saucer-shaped lamp of the Esquimaux, and others of the same shape, was some shallow shell,

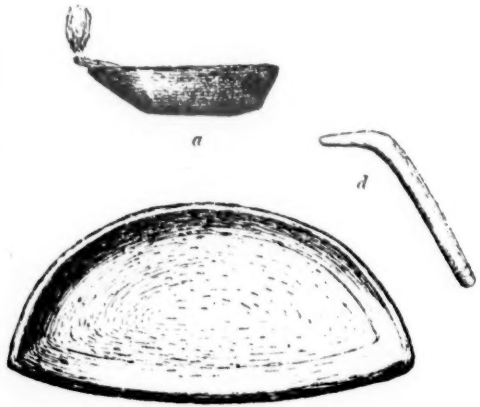


FIG. 1.

FIG. 2.

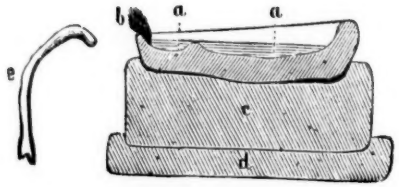


FIG. 3.

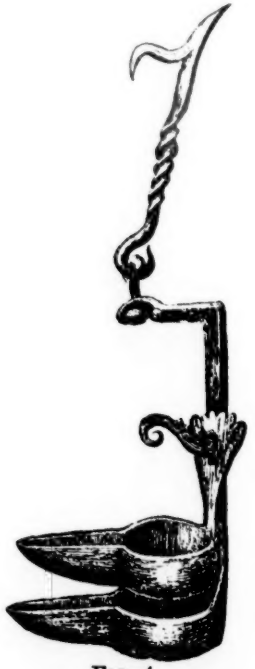


FIG. 4.

OIL LAMPS FROM (1) REPULSE BAY, (2 & 3) NORTH-EAST ASIA, AND (4) SCOTLAND.

and if he could give the meeting any facts bearing on this question.

General Pitt Rivers, Mr. A. Tylor, and Mr. Rudler also joined in the discussion, and the Author briefly replied.

On a Palæolithic Floor *at* North-East London.

By Worthington G. Smith, F.L.S., &c.[1]

[With Plates VIII to XXIII.[2]]

I first noticed the thin stratum of flint, in some places full of Palæolithic implements and flakes, and termed by me a "Palæolithic floor," in the beginning of 1878, on the south side of Stoke Newington Common, London; later in the spring I observed a similar stratum in the fields and market gardens on the north side of the Common, and eventually in many other places for three or four miles to the north, south, and west from this centre. On June 25th, 1878, I read a brief paper before this Institute, calling attention to the implements found by me (many *in situ*) at Stoke Newington, Shacklewell, Lower Clapton, and many other places. At the same meeting I exhibited a broken implement and flakes found by myself at Grays Thurrock, and others from West Tilbury, in South Essex.

Until 1878 only one implement had been found in an excavation in this district: this was lighted on by Mr. Norman Evans at Highbury in 1868, and is figured in Mr. John Evans's "Ancient Stone Implements of Great Britain," p. 525. This is a kind of side scraper, and is undoubtedly derived from the "Palæolithic floor," as I have since seen the "floor" in section at the spot where the instrument was found, and I have seen the implement itself, which exactly agrees in colour and sharpness with other implements from the same neighbourhood. Moreover, I have one found by myself almost exactly like it.

Two other implements had been found in the streets: one on the Lower Clapton side of Hackney Downs, in 1866, by Mr. G. H. Gaviller, and the other in Dunlace Road, Lower Clapton, by Mr. Anscombe; the latter instrument is in the Museum of Practical Geology, Jermyn Street.

[1] This paper was read before the Anthropological Institute by Mr. W. G. Smith on June 26th, 1883, and has since been brought up to the present date (January, 1884) by the author.

[2] These plates have been supplied by the author. Some of the illustrations have already appeared in "Nature" or in the "Transactions of the Essex Field Club," while others have been prepared by Mr. W. G. Smith for this paper.

In 1878 the exposed sections were insufficient to demonstrate for certain that a thin stratum of worked flints of Palæolithic age was spread for many miles a few feet beneath the present surface; indeed, the evidence was not complete till the present year (1883) that this stratum really existed on both sides of the Lea at north-east London. Excavations have not been numerous, and it was only by keeping a record of the exposed surface of every drain, house-foundation, pit, &c., during these five years, that the fact has been proved that such a stratum really exists. Some difficulty was also experienced in demonstrating the presence of "warp and trail" over the "floor," as the ground at north-east London has been so disturbed by market-gardening and brick-making that it is only in certain favourable positions, where the original undisturbed surface of the ground can be lighte l on, that undoubted "warp and trail" can be clearly seen.

The fact has, however, now been proved beyond dispute that the whole of the "Palæolithic floor" is, unless it has been artificially disturbed in modern times, covered with the "warp and trail" belonging to the last geological period of great cold.

In describing the position of this "floor," with its implements, as proved to exist up to the present time, the better plan will be to indicate it as seen in vertical section, then advert to its horizontal extent, next refer to the fossil bones and shells embedded in it; then describe the weapons, tools, &c., of stone; and, lastly, glance at the possible condition of the Palæolithic people who once lived on the "floor," and the people who lived at north-east London long before the floor existed.

A small portion of north-east London is engraved on the scale of 1 inch to the mile in fig. 1, Plate VIII. This area includes Stamford Hill and Tottenham in Middlesex, and Higham Hill, Walthamstow, Woodford, Snaresbrook, Wanstead, and Barking Side in Essex. The dotted lines show the distribution of the river gravel in regard to the river Lea on the left, and the Roding on the right. The gravel banks on both sides of the two rivers were continuous in Palæolithic times, but part of the material has since been removed by denudation. Fig. 2, Plate VIII, shows a section to the same horizontal scale, looking north, the vertical scale being 800 feet to the inch. The black portions on the more elevated parts show the implementiferous gravels, and the black tint below the ordnance datum line (below the rivers) is the lower gravel found at those positions. The figures indicate the heights above the mean sea-level. *B* is London clay, on which the gravels rest; *C*, the Woolwich and Reading beds; *D*, Thanet sand; *E*, Chalk; *F*, Upper Greensand; *G*, Gault. Beneath this section are two other sections (Plate VIII, figs. 3 and 4), through the rivers Lea and Roding; these show the

gravels above and under the streams. The two latter sections are drawn to a horizontal scale of 3 inches to the mile, and a vertical scale of 320 feet to an inch, in order to more clearly show the gravels as they rest on the London clay. The plan and sections are founded (by permission of Mr. William Whitaker) on the admirable geological model of London in the Museum of Practical Geology, Jermyn Street.

The "Palæolithic floor" at north-east London is generally on the top of the river gravel, and just beneath the "warp and trail." Its position will be seen indicated on the accompanying section, Plate IX, fig. 5, drawn to a horizontal scale of 2 inches to the mile, and a vertical scale of 100 feet to an inch. It is taken looking north from Stoke Newington Common, Middlesex, on the west, to the south of Walnut Tree House, to Moyers Lane, Leyton, Essex, on the east. These places are distinctly marked on Stanford's Library Map of London, on the lower parts of Sheets 3 and 4. The maps may be purchased geologically coloured, showing the drift deposits.

The extreme left of the section shows Stoke Newington Common 85 feet along the ordnance datum (with the neighbouring Hackney Brook, whose surface before it was recently obliterated was 68 feet above the ordnance datum), dropping into the Lea valley, the surface of the river on this line being 20 feet above the ordnance datum. On the right the section gradually rises to the Leyton side of the Lea, crossing the Fillibrook stream. The stream at this part, which too will soon be obliterated, is 44 feet above the ordnance datum, and the adjoining Moyers Lane is 56 feet.

The diagonal shading at the bottom of the section shows the London clay, the vertical shading above indicates the river gravel. The heavy black line on the top of this gravel shows the line of the "Palæolithic floor" on both sides of the Lea, and the uppermost line shows the line of "warp and trail" surmounted by humus. Undoubtedly the "Palæolithic floor" and the "warp and trail" at one time extended right over the valley of the Lea, as indicated by the heavy dotted line and the fine line above. At the time when the Palæolithic men lived on this "floor" the river was probably some 20 feet higher than now, as indicated by the dotted curve; the valley at that time, therefore, was much flatter and more marshy, and being flat the river of necessity was constantly changing its bed. The excavation of the last 20 feet of the Lea valley has been made since the "warp and trail" was deposited on the Palæolithic floor. Very little denudation has, however, taken place in recent times; for Roman remains, and even Neolithic celts, are found in the alluvial flats at *D D*.

At the points *A* and *B*, the "warp and trail" has been denuded off the "Palæolithic floor," and at these special points the "floor" crops up on the surface. At these positions, therefore, perfectly unabraded Palæolithic implements and flakes (which have never been moved unless in agricultural operations) may be found as the Palæolithic implements of chert now are at Bois du Rocher, near Dinan, in Brittany. It must, therefore, never be too hastily assumed that because Palæolithic implements are sometimes found in an unabraded state on a modern land surface, that they were actually made upon the humus as we now see it. The surroundings of every such position should be carefully noted. At the point *C*, and at other well-defined distant points from the Lea and Thames, the thin stratum, identified as the "Palæolithic floor," ceases. The men had good reasons for keeping within a moderate distance of the streams.

The "Palæolithic floor" on the Essex side of the Lea has been, to a very great extent, pushed away by the advancing "warp and trail," or denuded away since Palæolithic times. At present I have only seen it on the east side of Leyton Street and near Walnut Tree House. On the Middlesex side of the Lea the "floor" is of great extent. I have seen it at London Fields, and south of and at Kingsland, and it exists in some parts of Fleet Street, Drury Lane, Gray's Inn Lane, and Clerkenwell, at about 70 feet above the ordnance datum. It is well seen at Highbury, whence the first implement was obtained by Mr. Norman Evans, at Shacklewell, South Hornsey, some parts of Abney Park Cemetery, and Stoke Newington Common. I, however, have seen traces of it on many other surrounding places, and I believe, in short, that it extended over the whole of East Middlesex, into Herts as far as Hertford and Ware, and on both sides of the Thames from London to the Nore.

It is a curious fact that the superimposed "warp and trail" is also implementiferous; the implements in this material are all more or less abraded, some very much so, and many are whitish or mottled in colour from long contact with the tenacious clay. These implements have been brought from the north, from Amwell, at a height of 181 feet, Ware 145 feet, Hertford 132 feet, and Bush Hill Park and Forty Hill, Enfield, 129 feet, to a lower level, and deposited at north-east London, over the "Palæolithic floor" at about 85 feet. At Ealing Dean certain of the implements have been carried down into the valley from the heights at the north at 164 feet.

When the Shacklewell gravel was referred to by Mr. John Evans ("Ancient Stone Implements," p. 523), he wrote that it rested on the slopes of the Hackney Brook, and from the knowledge of its position to be obtained at that time he was

quite justified in the supposition. When I first found implements in the sand close to this brook, I too thought that the implements really belonged to its valley. But when at last the brook was quite obliterated, and builders dug foundations for houses in the middle of its bed, it was clear that the brook had nothing whatever to do with the Lea and Thames gravel at this place, but had merely excavated its way through it. On a section being made through the brook the "Palæolithic floor" was seen in section on both sides, as at *E*, fig. 5, Plate IX. I have seen a similar section across the Fillibrook stream as at *F*, fig. 5. These brooks, although they probably follow some very ancient depression in the London clay beneath, are quite modern in comparison with the "Palæolithic floor" and its implements.

It is not a little curious that although our existing brooks are of comparatively modern date, yet it has not been uncommon at north-east London to see sections exposed of brooks of Palæolithic age; these ancient brooks became filled in with sand, and then covered by "warp and trail" at the close of the Palæolithic period. An experienced eye can point out the probable position of such obliterated underground brooks at the present day, by noticing certain slight continuous depressions in the present ground surface. An underground bed of a Palæolithic brook exists in Bayston Road, close to West Hackney Church, Stoke Newington High Street. At the present day it may be seen that the houses in Bayston Road very gradually descend from both ends of the road to a very slight depression in the middle, and this slight depression in the road answers to the bed of an obliterated Palæolithic brook beneath. The accompanying illustration (Plate X, fig. 7) is engraved to the scale of $\frac{1}{8}$th of an inch to the foot, from a section exposed during the present year (1883) at the south of Tyssen Road, and immediately on the west of Bayston Road. At the base of the illustration at *A*, *B*, and *C*, different strata of implementiferous gravel and sand occur: these will be described further on; at *D* the bottom of the obliterated Palæolithic brook is shown: the stratum at the bottom of the brook is deep red sand, derived from the red gravel at *D*; whilst the narrow black seam which is superimposed is London clay incorporated with sand; the bed of the brook at *E* is filled with fine sand, stratified and perfectly horizontal. Above this, at *F*, is "warp and trail," and at the top at *G*, surface *humus*. It will be noticed that the "warp and trail" has ploughed its way through the brook and its banks, which had been previously filled up with fine sand. A few yards off, in the direction of *H*, the bank of the brook was again exposed, untouched by "warp and trail," and on this bank a beautiful unabraded Palæolithic implement was found, with numerous keen-edged flakes. The point *J* is the lowest point in

Bayston Road to this day. At this point the London clay is about 27 feet from the surface.

London clay comes to the surface close by and towards the north-west; nothing is more common than to see seams and rolled blocks of this clay in the sand and gravel, and also in the "warp and trail"; sometimes implements and flakes may be found sticking in this transported clay.

In 1882, whilst watching some excavations in the sand on the north side of Stoke Newington Common, I noticed that numerous almost spherical balls of sand rolled from the tops of the heaps to the bottom as the sand was thrown from the barrows of the workmen. The spheres of sand were about 4 inches in diameter, and many were slightly oval. On breaking them open they were found to consist of rolled blocks of London clay coated with sand: the balls of clay were laminated as if the masses had increased in size in rolling, and between the laminæ were distinct remains of leaves like grass. I preserved some of these puzzling balls of clay for a short time, but in drying they broke up into laminæ and dust, and so perished. I have now no doubt that these objects were formed exactly in the same manner as the mud-balls described by Mr. G. H. Darwin, in "Nature," Vol. XXVII, p. 507. Mr. Darwin states that mud-balls were naturally formed at Bromley, Kent, after a violent storm of rain, probably by pellets of mud being washed down a hillside and rolling as they went; whether accompanied by the melting of snow Mr. Darwin was unable to remember. The higher grounds near Stoke Newington Common are now coated with London clay as they were in Palæolithic times, and if we imagine a violent storm of rain after the breaking up of a frost, pieces of clay might readily be set free, and rolled on to the Palæolithic sands of Stoke Newington, such balls catching up fragments of vegetation on their way.

The best section of the "Palæolithic floor" that I have yet seen was exposed during the formation of the new roads on the north side of Stoke Newington Common, where Alkham, Kyverdale, Osbaldeston, and Fountaine Roads now are. The digging on this ground was continued for five years, from 1878 to 1883, and the various excavations showed that about 4 feet from the surface there was at this spot an immense accumulation of Palæolithic implements, including pointed and oval weapons and tools, large numbers of scrapers, hammer and anvil stones, and flakes and cores without number; most of the weapons and tools being as perfect and keen as on the day they were made.

A section through the ground between Alkham and Kyverdale Roads, bounded on the north by Cazenove Road, and on the south by Stoke Newington Common, is illustrated in Plate IX, fig. 6.

The upper part of the figure shows a section 300 feet in length. The line of the Palæolithic floor is shown at *A A A*, covered by sandy loam and humus; the surface at the north or right hand side is 90 feet 6 inches above the ordnance datum, whilst the south end or left side is 83 feet 3 inches. At this spot the "warp and trail" is less marked than in neighbouring places. The "floor" consists of a stratum of some five or six inches of sub-angular ochreous gravel, in some places only one or two inches in thickness, or only visible as a line of colour. Amongst the flints, which have grey or bright ochreous crusts, are pieces of sandstone, quartzite, white quartz, Lydian stone, and pieces of other rocks, but none of the large masses so often described as belonging to the Thames valley drift at London; a few bones, antlers, teeth, and pieces of chalk and driftwood occur, and amongst these rolled and water-worn stones and bones the black sharp-edged implements are found. In Abney Park Cemetery, not far from the entrance gates, the same "floor" is seen in section in the graves, generally at about 12 feet from the surface. At 8 feet below the "floor" at Stoke Newington Common, and 12 feet from the present ground line, is a second bed of implementiferous gravel, surmounted by sand as shown at the base of the upper illustration in fig. 6, Plate IX. The majority of the implements belonging to this stratum of the London district are found between the 50 feet and 100 feet contour lines of the Ordnance Maps. 70 and 75 feet is a prolific height. Above the 100 feet line, and below the 50 feet line, the implements belonging to this stratum are somewhat rare.

To more clearly show the nature of the "floor" the 60 feet of the upper figure (where marked) is engraved below to a larger scale: *B* is the 12 feet gravel containing rolled fossil bones and abraded Palæolithic implements; *C* is fine buff-coloured sand, often full of fossil shells of land and fresh-water molluscs; *D D D* is the "floor," with its numerous unabraded weapons, tools, flakes, &c. At the point illustrated the "floor" happens to be in duplicate; after the men had made their tools where the lower *D*'s occur a slight flood of water covered the stones with a thin coating of sand: the men then walked over the newly deposited sand, and made other tools on the new "floor." The two white streaks on the top of the upper floor are London clay mixed with sand. Above the floor is sandy loam and loamy sand, distinctly non-waterlaid, and one form of "warp and trail." It is often full of pebbles placed at diverse angles; on the top of all, is humus containing Neolithic implements and flakes, British pottery, bone tools, Roman and mediæval coins, and objects of recent date.

The non-waterlaid covering mass often disturbs the "floor,"

ploughs it up and pushes underneath it. The twisting contortion and undulation of the material above the "floor" seem to prove that it was laid down by moving ice or frozen mud from the north. The abraded and whitened implements and flakes, sometimes found embedded at all angles in the "warp and trail," were no doubt caught up from old exposed surfaces, and carried southwards by the advancing ice sheet. No Palæolithic implements occur in the *humus* above the trail, and they never occur on the surface unless the superimposed material has been naturally or artificially removed. The "warp and trail" seals up all the relics of the Palæolithic age, and as far as the evidence found at north-east London goes, Palæolithic man had quite retired before the "warp and trail" was laid down. I have seen no evidence that he ever returned on to the new surface made by this material.

Fig. 8, Plate X, is a measured section through the "floor," facing west on the other side of the section illustrated at fig. 6; the "floor" is seen at from 3 feet 6 inches to 4 feet 10 inches beneath the surface; muddy trail with a few stones is present at *B* and *C*; *D* is humus. In the direction of the arrow from north to south the "trail" is seen pushing under and upheaving the "floor" with its implements; the Hackney Brook is towards the south, and a flooded brook to the south would hardly upheave the "floor" from the north; *A* is a mass of London clay and sand, brought from a distance and pushed under the "floor" by the advancing "trail" from the north. Where the "floor" has been crumpled and disturbed, the implements show a very slight amount of abrasion; where the "floor" is unmoved and covered by the stratified sand or mud of the Lea, the tools and flakes are all as sharp as on the day they were made.

Very near the sections already illustrated, viz., at 270 yards west by north from Clapton Railway Station, and just south of Caroline Street (marked on Stanford's Library Map of London), one or two other excavations have recently been made; these show admirable sections of characteristic "warp and trail." At fig. 9, Plate XI, a section facing south is engraved to scale, and at fig. 10, Plate XI, the end of the section is further enlarged to show the "warp and trail" above and the horizontal stratification below. The section is 11 feet 6 inches deep, and just reaches the top of the stratum of gravel, which contains abraded implements intermediate in age between those of the "floor" above and those found at from 20 feet to 30 feet from the surface. The "Palæolithic floor" on fig. 9, if present, would be just above the horizontal bands of stratification, but the trail at this spot has swept it away; it, however, occurs in a perfect state with

its implements only a few yards to the south. Beginning at the top, the reference letter *R* is humus; *Q*, mud belonging to the "trail"; *P*, a pocket of London clay; *O*, "trail"; *N*, Palæolithic sand and loam, crumpled and disturbed by the trail; *M*, dark sand and clay; *L*, light sand and clay; *K*, dark sand and clay; *J*, yellow sand; *I*, red sand; *H*, light sand and clay; *G*, dark sand and clay; *F*, red sand; *E*, yellow sand; *D*, red sand; *C*, sand, almost white; *B*, buff sand, sometimes full of the fossil shells of land and fresh-water molluscs. These sands represent the sandy margin of the old Thames, now four miles distant from this spot.

The bed of gravel marked *B* on fig. 7, Plate X, and *A* on fig. 10, Plate XI, is found at north-east London, at an average depth of 12 feet, and descends to 20 feet and even 30 feet; this drift contains, chiefly in its upper parts, lustrous sub-abraded implements of medium age. All the tools have been more or less moved and rolled by water; none are quite unabraded; bones, teeth, tusks, antlers, and driftwood occur. The deposit has been described by Professor Prestwich, in the "Quarterly Journal of the Geological Society," 1855, Vol. XI, p. 107. The material is remarkable for containing immense blocks of sandstone, probably never moved by water alone; that these stones fell from floating blocks of ice seems extremely probable. One example at Stamford Hill measured 1 foot 5 inches by 1 foot 4 inches by 9 inches; another at Stoke Newington measured 1 foot 6 inches by 1 foot by 1 foot; some of the sandstones exhibit glacial striæ. A block of white quartz seen by me at Shacklewell measured 1 foot 2 inches in diameter. At Hackney I have seen sandstone blocks weighing 2, 3, 4, and even 5 cwt. each, excavated from the lower gravel. These blocks must have been brought from the north and north-west long prior to the deposition of the "warp and trail," and probably long after certain other immense blocks found at the bottom of the 20 feet and 30 feet deposits of gravel were laid down. The stones forming the Lea gravel are chiefly derived from the glacial beds at North Middlesex and South Herts. The flints are generally sub-angular and abraded; hornblendic granite sometimes occurs with silicified wood; white quartz, quartzite, sandstone, Lydian stone, and various fossils form the chalk, greensand, London clay, and other deposits. Generally in the deepest pits the third, and, as I believe, the oldest, class of Palæolithic implements is found: the examples are not sharp, like the implements from the floor, or slightly abraded and lustrous, like the implements found on the top of the 12 feet stratum at Stoke Newington Common; they are, on the contrary, greatly abraded, rude in manufacture, and deeply ochreous in colour. None of the implements in the two first positions, unless "derived," are ochreous.

The disposition of the river-gravels is shown on the geological maps which show the superficial deposits ; they need not therefore be referred to here. I have, or have had, implements from Clerkenwell, Drury Lane, Gray's Inn Lane, London Fields, Dalston, Kingsland, Homerton, Hackney, Lower Clapton, Upper Clapton, Mildmay Park, South Hornsey, Abney Park Cemetery, Stoke Newington, Shacklewell, Stamford Hill, Tottenham, Edmonton, Enfield, Forty Hill, Waltham, and Cheshunt, on the west bank of the Lea ; and from Plaistow, Stratford, Leyton, Leytonstone, Wanstead, Walthamstow, Higham Hill, West Ham, Forest Gate, and Upton, on the east bank. Leaving the Lea valley for the Roding, I may add Barking, East Ham, and Ilford, and, further east still, Rainham, Grays Thurrock, Little Thurrock, Tilbury, Mucking, Orsett, Southend, and other places. All these localities were first lighted on by myself, for no implements had been traced with any certainty to the Lea or Roding till I found them *in situ*. Mr. John Evans records the finding of two implements in the valley of the Stort, one near Bishop's Stortford and the other two miles further to the north, near Pesterford Bridge. I also have an implement, found by myself, from *low-level* gravel belonging to the valley of the Lea at Ware.

Fossil bones, antlers, horn-cores, tusks, and teeth are not very common in the gravels and sands of north-east London; when they do occur they are almost invariably in a broken or fragmentary condition. Athough some examples are very hard and heavy, others are so soft and friable that their removal is impossible. I have sometimes seen groups of bones—or rather the changed remains of them—on the Palæolithic floor, but the slightest touch has been sufficient to reduce them to fine dust. Such groups of bones could only be preserved and removed by the superincumbent sand being carefully moved and hot gelatine poured from the top, over and into the softened mass. Sometimes the larger bones are found broken into fragments and quite flat in the stratified sand; when the fragments are gathered together and joined, the bones take their natural curves as in the scapula of the mammoth in my collection. It is common to find the bones in connection with flint flakes and implements, and it is also common to find the fossil shells of land and fresh-water molluscs adherent to them. The bones sometimes show signs of possible hacking, cutting, and gnawing, but I have never been able to satisfy myself of the presence of such marks as dating from Palæolithic times. The bones differ from each other in hardness and colour according to the matrix in which they are found. It often happens that ferruginous gravel, fine (almost white) sand, and clay, occur in close contiguity in thin seams; therefore the bones in such places, although close

together, differ widely in external appearance, and one might think, from a cursory examination only, that they came from wholly different and distant deposits. I have seen bristles and adipocere with the bones. Sometimes pieces of fossil bone, horn, and ivory may be seen in the streets with the gravel. I have a small piece of mammoth tusk and an implement that I found in the sand thrown out of a grave in Abney Park Cemetery.

The fossil remains of the following animals have been found in the gravels, sands, and brick-earth at and near London. A vast number of others might of course be added were it possible, without great difficulty, to identify the innumerable fragments of bone, and the bones in a soft condition.

Man is at present only represented by his numerous works, but I have little doubt (although there is no positive proof) that I have seen human remains in a flat and powdery condition.

CARNIVORA—

1. Lion, *Felis spelæa.* Goldf.
2. Wild cat, *Felis catus ferus.* L.
3. Hyæna, *Hyæna crocuta.* Zimm.; var. *spelæa.* Goldf.
4. Wolf, *Canis lupus.* L.
5. Fox, *Canis vulpes.* L.
6. Brown bear, *Ursus arctos.* L.
7. Grisly bear, *Ursus ferox.* L. and C.
8. Otter, *Lutra vulgaris.* Erxl.

PROBOSCIDEA—

9. Mammoth, *Elephas primigenius.* Bl.
10. Straight-tusked elephant, *Elephas antiquus.* Falc.

UNGULATA—

11. Horse, *Equus caballus.* L.
12. Big-nosed rhinoceros, *Rhinoceros megarhinus.* Chr.
13. Small-nosed rhinoceros, *Rhinoceros leptorhinus.* Owen.
14. Woolly rhinoceros, *Rhinoceros tichorhinus.* Cuv.
15. Wild boar, *Sus scrofa ferox.* L.
16. Hippopotamus, *Hippopotamus major.* Cuv.
17. Stag, *Cervus elaphus.* L.
18. Roe, *Cervus capreolus.* L.
19. Reindeer, *Cervus tarandus.* L.
20. Irish elk, *Megaceros hibernicus.* Owen.
21. Urus, *Bos primigenius.* Boj.
22. Bison, *Bison priscus.* Boj.

RODENTIA—

23. Beaver, *Castor europæus.* Owen.
24. Water vole, *Arvicola amphibia.* Owen.

The musk sheep (*Ovibus moschatus*, Desm.), and the pouched marmot (*Spermophilus cittilus*, Pall.), have not yet been detected on the north of the Thames.

The following is a list of the fossil shells of fresh-water molluscs found in the sand at north-east London. Dr. J. Gwyn Jeffreys has kindly named many of them for me. The list is compiled from my own series, and from those published by Prof. Joseph Prestwich and Dr. John Evans.

Class I.—CONCHIFERA, or BIVALVES.

Ord. I.—Lamellibranchiata.

Fam. I.—Sphæriidæ.

1. *Corbicula fluminalis.* Müll.
2. *Sphærum corneum.* Linn.
3. *Pisidium amnicum.* Müll.
4. „ *fontinale.* Drap.; var. *Henslowana.* Jeff.
„ „ „ „ *pulchella.* Jeff.
5. „ *pusillum.* Gmelin.
„ „ var. *obtusalis.* Jeff.

Fam. II.—Unionidæ.

6. *Unio tumidus.* Phil.
7. „ *pictorum.* Linn.

Fam. III.—Dreissenidæ.

Non.

Class II.—GASTEROPODA, or UNIVALVES.

Ord. I.—Pectinibranchiata.

Fam. I.—Neritinæ.

Non.

Fam. II.—Paludinidæ.

8. *Bythinia tentaculata.* Linn.
9. *Hydrobia marginata.* Mich.

Fam. III.—Valvatidæ.

10. *Valvata piscinalis.* Müll.; var. *subcylindrica.* Jeff.
11. „ *cristata.* Müll.

ORD. II.—PULMONOBRANCHIATA.

FAM. I.—Limnæidæ.

12. *Planorbis nitidus.* Müll.
13. „ *nautileus.* Linn.
14. „ *albus.* Müll.
15. „ *marginatus.* Drap.
16. „ *glaber.* Jeff.
17. „ *spirorbis.* Müll.
18. „ *carinatus.* Müll.
19. „ *complanatus.* Linn.
20. „ *contortus.* Linn.
21. *Limnæa peregra.* Müll.
22. „ *auricularia.* Linn.
23. „ *stagnalis.* Linn.
24. „ *palustris.* Müll.
25. „ *truncatula.* Müll.
26. „ *glabra.* Müll.
27. *Ancylus fluviatilis.* Müll.
28. „ *lacustris.* Linn.

TERRESTRIAL.

FAM. I.—Limacidæ.

Non.

FAM. II.—Testacellidæ.

Non.

FAM. III.—Helicidæ.

29. *Succinea putris.* Linn.
30. *Zonites radiatulus.* Ald.
31. „ *nitidus.* Müll.
32. „ *chrystallinus.* Müll.
33. *Helix aculeata.* Müll.
34. „ *nemoralis.* Linn.
35. „ *arbustorum.* Linn.
36. „ *rufescens.* Penn.
37. „ *concinna.* Jeff.
38. „ *hispida* (?). Linn.
39. „ *pulchella.* Müll.
40. *Pupa umbilicata.* Drap.
41. „ *marginata.* Drap.
42. *Clausilia biplicata.* Mont.
43. *Cochlicopa lubrica.* Müll.
44. *Achatina acicula.* Müll.

Fam. IV.—Carychiidæ.

45. *Carychium minimum.* Müll.

Fam. V.—Cyclostomatidæ.

Non.

Dr. Jeffreys has been good enough to add the following note:—"The occurrence of *Pisidium fontinale*, var. *Henslowana*, as well as the *tout ensemble* of all these fossil shells, induces me to believe that they have been thrown up by the floods on the banks of a large river such as the Thames."

In describing the implements of north-east London it will be convenient to take the surface *humus* first, and proceed from the newer to the older deposits. The *humus* of the district under description contains in every part Neolithic implements: celts, polished and unpolished, arrow-heads, scrapers, flakes, hammer stones and cores; they are, however, in no place common; they are generally greyish in colour, not usually dark, and not as a rule very lustrous, but exceptional examples as to colour and lustre occur.

After the humus of one or two feet, with its Neolithic implements, is removed, the "warp and trail" is reached; this material contains Palæolithic implements and flakes of different ages, and in all stages of abrasion and decomposition, and fixed in the clay at various angles—I have seen them upright. These implements have been ploughed up by the "warp" from other districts or swept up from old surfaces and laid down by frozen mud in the positions where they are now found. They belong to all three of the series mentioned in the following notes.

Under the "warp and trail" the "Palæolithic floor" is met with, sometimes as near the present surface as 2 or 3 feet, sometimes as deep as 10 or 12 feet, sometimes in duplicate. The depth varies according to the contour of the old land surface, or according to the floor being rendered deep by modern accumulations, or near by denudation, or by the removal of the surface in modern times.

The abundant fossil-shells of land and fresh-water molluscs prove the place to have been at one time close to the margin of a great river, with its tributary streams, brooks, and aquatic plants. The men and other animals lived by the river-side for the convenience of the water. The men, too, were obviously safer in the open places by the rivers and streams than in the adjoining woods in company with wild and dangerous animals.

There must have been an enormous number of Palæolithic men living on the "Palæolithic floor" at north-east London, as is

proved by the number and variety of the stone weapons and tools found upon the "floor." Although not a ten-thousandth part of the "floor" has been excavated, yet in a five years' examination of excavations for new houses and drains (over a very limited area, and in erratic spots), more than one thousand implements of stone have been found. In addition to the so-called ordinary weapons and tools, vast numbers of scrapers have been found, together with knife-forms, as fig. 11, Plate XII, chopper-forms as at fig. 14, Plate XIII, wedge-forms as at fig. 12, and simple flakes and cores as at fig. 13, in hundreds of thousands. All the illustrations of stone implements, with one exception, are one-half natural size.

It will be noticed that the knife, which is from the "Palæolithic floor" at Leyton, in Essex, is skilfully retrimmed on one side of one edge only.

All the implements belonging to the "Palæolithic floor" are lustrous, often highly so; nearly of the natural colour of the flint, but almost invariably with a slight (almost invisible) tint of ochre. As a rule, every implement and flake is as sharp as on the day it was made. A few, owing to a slight movement of the "warp and trail," are very slightly abraded. As a rule, none are scratched by the movement of other stones upon and around them.

The implements have been found in such positions and with such certainty wherever the "floor" has been uncovered that the idea is sometimes forced on one that all the makers of the implements suddenly left the place in fear of some impending danger, and left their tools on the very spots where they were being used. For instance, an accumulation of sharp flakes, several implements, hammer-stones, and what I take to be anvil-stones, have more than once been found together; the flakes have been replaced, and pieces of implements broken in Palæolithic times have been found near each other, and re-joined in modern times by myself. If the men went southwards in fear, it is clear that the first result to the "floor" was the mere covering by fine river sand, often full of the shells of land and fresh-water molluscs. To the present day these shells are, as a rule, unbroken. Even the large tender shells of *Helix nemoralis*, L., are found perfectly intact; there is not the slightest indication of any violent commotion.

As a rule, most of the implements belonging to the "Palæolithic floor" are very small, thin, and show most beautiful workmanship, sometimes rivalling in fineness and thinness the best Neolithic work. Fig. 15, Plate XIII (formerly No. 403 in my collection, now in the possession of Mr. John Evans), is a typical example; the engraving, however, gives a very poor idea of the fineness, sharpness, and beauty of the tool. Fig. 16 is an exqui-

sitely fine trimmed flake (No. 47 in my collection). Fig. 17, Plate XIV, is an implement (No. 627 in my collection) worked on both sides, the natural crust of the flint being left untouched on the butt; weight, $1\frac{1}{6}$ oz. These are by no means the smallest or lightest of the tools found on the "floor"; several have been found, worked on both sides, that weigh less than half an ounce each, as the one at fig. 18, found by Mr. G. T. Lawrence, and by him added to my collection. Although some implements resemble lance-heads in shape, yet there appears to me to be no evidence whatever that these small stones were ever mounted for use as lances, although they probably foreshadowed lances and arrows. I consider they were all held by the thumb and two next fingers. Fig. 19 is a small and extremely neat scraper (No. 22 in my collection); whilst fig. 20 is a boring tool from the "Palæolithic floor" at Grays Thurrock, found by Mr. Sidney Roberts; this is a keenly pointed and remarkable little tool, which might have been put to disagreeable uses. Fig. 22, Plate XV, is an illustration of the largest tool hitherto found on the "floor" (formerly No. 409 in my collection, but now in the possession of Mr. John Evans). It measures 9 inches by 5, and weighs 2 lbs. $13\frac{3}{4}$ oz. It exhibits glacial striæ on a large patch of original crust on one side, and indicated at *D* on edge view. This implement was found on the "Palæolithic floor" in three pieces, *A*, *B*, *C*, by two different men at different times and at different places. If the report given by the finders is true—and I know no reason for disbelieving it—the implement must have been broken in Palæolithic times. The men who found the pieces did not know they would fit together, and the fourth piece, indicated by dots, although sought for, was never found.

An example of two replaced flakes is illustrated at fig. 21, Plate XIV. The front of the conjoined flakes is shown at *G*, and the side at *H*. I found the lower flake two days before, and some distance from where I found the upper one; but as I have a method of placing newly found sharp flakes on a table, arranged temporarily in accordance with their colour and markings, I speedily saw that this upper flake would fit on to the lower one. Each flake has a cone of percussion, as shown at *J K*, and the upper flake has a well-marked depression at *L*, corresponding with the missing flake, which, if it had been found, would have fitted on to the front of the two conjoined examples. Both flakes are sharp and slightly stained with the ochreous river sand which overlaid them. Both (especially the upper one) show unmistakable signs of having been used as scrapers, the upper curved edge (and that edge only) being worn away by use. The worn upper edge of the superimposed flake at *M M* is distinctly shown in the illustration. A small intermediate piece belonging to the

position at *N*, I did not find. Both are naturally mottled in a peculiar manner, and the pattern and colour of the mottling exactly agree.

Implements broken in the course of manufacture, and others broken in use or roughly blocked out to shape, and never finished, have been found in large numbers. As an example, an engraving is given at fig. 23, Plate XVI, of an unfinished implement, merely blocked out, found by me on the "Palæolithic floor" near Bedford; it exactly agrees with similar stones found at Stoke Newington. Nondescript, apocryphal, and curious forms occur, sometimes of small size, at others very large. The illustration at fig. 24 shows a large and heavy unabraded implement, found and given to me by Miss Eleanor A. Ormerod, F.M.S., in gravel and brick earth, thrown out of an excavation made for the new Hounslow and London Railway, immediately south of Osterley Park, near Isleworth, The illustration shows a front and side view of the implement, which is 2 feet long, and weighs 32 lbs. Judging from what I saw of the sections, and by other flints found by me at the same place, I have no doubt of the existence of a "Palæolithic floor" near Isleworth, whence this massive implement and other relics were derived. The more pointed end of the implement illustrated has been rudely but skilfully trimmed to a wedge-like point, towards the base at *A* (seen more distinctly on the right of left figure at same point); the signs of battering or hammering are remarkably distinct. I do not think this battering has arisen from the use of the tool as a club, but rather as an anvil; several flakes have been removed from the extreme butt, and a few small inconvenient asperities have been knocked off elsewhere. Greater part of the flint is covered with the original bark, and this bark is brownish ochreous, its colour proving its derivation from the ochreous gravel. The trimmed parts are lustrous, unabraded, and very slightly stained. The whole condition of the implement exactly agrees with stone tools found on the "floors" at Stoke Newington, Erith, Northfleet, and Grays Thurrock. The tool appears to have been used as an instrument for thrusting, as well as in a horizontal position, as an anvil-stone. It would be idle to mention the possible uses of such a huge tool as this; but every one who has formed ideas of the mode of life of Palæolithic men will readily think of numerous uses to which such an implement could have been put.

Anvil-stones are common on all the "Palæolithic floors" I have seen; one from Stoke Newington is illustrated at fig. 25, Plate XVII, most of them are so large that removal is either impossible or inconvenient by hand. They are known by the distinct marks of hammering seen on some special part of the stone, generally on

a flat surface. The vertical arrows in fig. 25 show the direction of the blows from vertical hammering, and the horizontal arrows the direction of blows delivered on the block in a horizontal direction. With the exception of the bruised and splintered edge, seen between the two sets of arrows, all the other edges of the block are sharp. I was present when this block was exposed on the "floor"; many sharp flakes were found near it, and several quartzite hammer-stones—*i.e.*, quartzite pebbles with the ends abraded off by hammering. One of these pebbles is illustrated at fig. 26 (formerly No. 18 in my collection, but now in the possession of Mr. John Evans). The dotted parts show where the pebble is abraded away. Although these quartzites were undoubtedly used for hammering, I do not believe they were abraded in the manufacture of implements, but chiefly by striking them against blocks of flint to obtain fire. They are most effectual for this purpose, and impossible tools without a punch for anything like small or skilful flaking. Other hammer-stones, of truncated cylindrical pieces of flint, also occur. One from the "floor" at Grays Thurrock is illustrated at fig. 27. It will be observed that the edge of one truncated end only has been splintered away by hammering; the upper part, which was held in the hand, is unsplintered.

For the last six years I have made careful search for examples of carved bone or ivory, needles, fish-hooks, and harpoons, such as are found in some caves with implements similar with the tools found on "Palæolithic floors," but nothing of the kind has rewarded my researches. Even at Stoke Newington, a position at which I was daily present for many months, nothing of the sort, and nothing that could be accepted even as a stone lance or arrow-head, came to sight. Although needles do not occur, small borers of flint are not unfrequent.

In one place a shark's tooth, probably "derived," was found with flakes on the "floor," and in another place the implement-like piece of fossil-bone illustrated at fig. 28, Plate XVIII.

At Bedford I have been more successful, for here I have found a considerable number of examples of *Coscinopora globularis*, D'Orb., that show an artificial enlargement of the natural orifice, and so seem to have been used for personal ornaments, as beads. Dr. Rigollot ("Mémoire sur des Instruments en Silex," p. 16) says he often found small groups of this foraminiferous fossil in one place—just as if, when swept into the river's bed by a flood, the bond which united them together remained unbroken. Mr. James Wyatt, of Bedford, in examining these bead-like fossils ("Geologist," 1862, p. 234), said he had examined more than two hundred specimens, and on making sections of some of them he saw marks which appeared to indicate

"drilling with a tool after the object was fossilised." In 1880 I found over two hundred examples of this fossil at Bedford, with unabraded implements and flakes and carbonised vegetable remains. The finding of the above large number together seemed to lend some confirmation to Dr. Rigollett's view, for it seems unreasonable to believe that so large a number of fossils from chalk could by any possibility find a position in one place in any river gravel. The surface round each orifice of many of the Bedford beads was abraded, as if by the constant contact of the bead next on a string. A few of the beads also had the hole artificially enlarged, as illustrated (actual size) at fig. 30, sometimes at both ends, as at section *A*, sometimes in the middle, as at section *B*, and sometimes at one end only, as at section *C*. The dotted lines in these illustrations show the original natural orifice; the solid lines near the dotted ones show the enlargement by artificial drilling. In some instances the drilling appears to be comparatively fresh; in other cases less so; but it must be remembered that the implements found with them were mostly unabraded, and vegetable remains were found. The specimens were found by myself; they were not touched or manipulated by the workmen; other examples of these beads had one end near the orifice broken away, as if in an attempt to enlarge the opening by breaking the substance of the fossil away, as at *D*, *E*, *F*.

Whilst looking through the fallen material in the pit, the piece of naturally perforated fossil-shell, illustrated actual size at *G*, attracted my attention. The hole is probably due to a shell-boring mollusc, but when I saw the object in the drift I distinctly noticed that a black substance entered at one side of the hole, and emerged at the other; at the moment of picking the object up this material fell to dust, with part of the very friable surface of the fossil-shell. Some of the beads (as seen in section *H*, *J*, *K*, *L*) also bore very distinct traces of a similar black substance within the orifice, although not seen till the sand and part of the black substance itself had fallen out. This black material I took to be the remains of part of the ligament on with the beads were originally strung by their Palæolithic owner, and with this idea in mind I sent some to Mr. A. Hobson, analytical chemist, of 17, Regent Street, for analysis, with the following result.

"The testing for nitrogenous organic matters," wrote Mr. Hobson, "of which animal tissues are composed, was tested in the same manner as testing water for such matter—that is, by converting it into ammonia; precautions were of course taken to eliminate from the results any ammonia already existing. The amount of ammonia was strikingly evident, and showed with each bead

separately. The blackening of the organic matter in the holes of the beads may have taken place in a manner similar to that of the formation of coal."

On testing the beads, which consist chiefly of carbonate of lime or chalk, without the black material in the orifice, Mr. Hobson reported that "when treated in the same manner as those originally sent, they show the presence of a considerable amount of heterogenous or animal organic matter, as was to be expected from their origin, but not so much as those with the black deposit."

Mr. A. Clarke, analytical chemist, of Huddersfield, who also made an analysis for me, reported as follows:—

"I divided the bead into three portions: No. 1, the thin dark crust forming the internal portion of the ring; this is most certainly organic matter. No. 2, a powdery part, between No. 1 and the main body of the ring, consisting of small quantities of carbonates of iron and lime. No. 3, the outer main body of the ring, mostly carbonate of lime, and a small quantity of silica; here there is only a trace of organic matter, but it is most distinctly present."

I have often noticed, in dipping flakes from the "Palæolithic floors" into cold water to remove the superabundance of sand, that the water does not remain as the round point of impact above the cone of percussion, but flows away from this spot as if from grease. The cause of this may be a different disposition of the constituent atoms of the flint at the point where the blow was received.

In making implements, the Palæolithic men no doubt first "quartered" large blocks of flint by splintering them with large and heavy pebbles of quartzite, or some other tough rock. Suitable pieces of splintered flint were then selected for implements, and roughly trimmed to shape with a quartzite pebble at first, with or without a punch, upon an anvil-stone. I believe two persons were always employed upon finishing implements; one person held the implement edge-ways, with both hands upon the anvil-stone, and the second person used both hands in delivering slight but accurate blows upon the edge to remove small flakes; this, I believe, was done with a quartzite pebble, used as a hammer in the right hand, and a small cylindrical flint punch in the left hand. Small punches are frequent on Palæolithic floors, and one is illustrated at fig. 29. It will be noted that the more pointed end is splintered by punching; the truncated end at top is meant to receive the impact of this hammer-stone. The smallest flakes of all were probably *pushed* off by "fabricators," such as are illustrated at figs. 31 and 32, Plate XIX; the unfinished implement was firmly held in

the left hand, and the fabricator in the right, the thumb of the right hand being used as a fulcrum; the minute flakes round the cutting edge of the implement were then pushed off by the obtusely pointed end of the fabricator. When the idea of fabricators first presented itself to me I had seen but few, but on telling friends to search for such things many came to light, some not to be distinguished from Neolithic fabricators. The cone is at the basal end of each fabricator.

During the last summer I lighted on a gang of skilful forgers of flint implements, and their mode of manufacture, which seemed to me to be a perfect one, was the one given above, metal tools being substituted for stone.

Although man's bones have not yet been found on any "floor," evidence of his former presence is well enough marked. At fig. 33, is illustrated a fragment of a fossil antler of red deer (*Cervus elaphus*, L.), found by me, *in situ* with numerous other fragments of horn, bone, and ivory, and keen flakes and implements, on the "Palæolithic floor" near Grays Thurrock. It is interesting as distinctly showing (as I think) a fracture produced by the straight edge of a Palæolithic implement at *A B*. The blow has broken the antler, and the piece broken off is seen at *C D*, not free, as it was in Palæolithic times, but naturally and firmly cemented by a ferruginous deposit into one mass; the fragment of antler is made more interesting by the presence of an impression in the hard ferruginous deposit of the shell of *Corbicula fluminalis*, Mull., at *E*, a shell abundantly found in a fossil state on the same "floor"; *F* is a fragment of antler naturally cemented; *G* is a hard concreted mass of ferruginous sand.

I have a flake from High Lodge, found by Mr. Henry Prigg, of Bury St. Edmunds, that was broken in two upon the sandy ground in Palæolithic times, and the sand forced between the two separated portions. I have made the sand firm with gum-water, and it now shows impressions of the facets of the flake and the ridge, which was between the two pieces.

As the implements from "Palæolithic floors" are generally sharp and keen, and almost of the natural colour of the flint, the circumstance offers a great temptation to forgers. Forgers cannot imitate ochreous, mottled, or white implements where the surface has been changed by decomposition, but a passable imitation is easy with the keen-edged examples. At first, therefore, I was extremely reticent about my discoveries, keeping the Stoke Newington position a secret both from scientific friends and the workmen. For the first two and a half years no person but myself knew anything of the position or its relics. Although I was daily with the workmen not one knew the real object of my quest; I always told the men "bones

and fossils," and I furtively gathered up the implements and flakes with my own hands. At length, however, a workman noticed the implements, and their manifestly artificial origin, and he speedily had an opportunity of communicating his knowledge to men who knew what implements were. I was then obliged to publish the locality, and, with the usual result, a flood of visitors overran the spot and offered bribes to the men for stone tools; the supply was not equal to the demand, so carpenters, plasterers, and masons engaged on the building works varied their proper occupations with forgeries of flint tools; the labourers did not and could not make them, they were not sufficiently skilled. Loafers and boys bought the tools of the mechanics, and the former laid in wait for visitors and sold their spurious antiquities, often for large sums of money. One person, who had read my description of abraded quartzites, explained these objects to the men;—being extremely easy to make, the market was soon glutted with abraded quartzites. Another amateur, equally unwise, descanted on "glacial striæ," and in a few days flints and implements marked with forged "glacial striæ" were common. Not only did these forged antiquities get into private hands, but they were offered to dealers, and probably bought and re-sold.

It need hardly be said that no archæologist need be deceived by a forged implement; to a man who knows what a true implement, hammer, or glacial scratch is, there is as much difference between the genuine thing as there is between gold and brass, or diamond and glass. The moral to be derived from the statement regarding forgeries is—be very careful in dealing with workmen, especially skilled mechanics, and boys. As in scientific statements it is commonly of quite as much importance to know who says a certain thing as to know what is said, so with unabraded Palæolithic implements, it is always necessary to know who produces the implements. I have seen genuine Palæolithic implements which have been purchased as belonging to Stoke Newington, which I perfectly well know by their form and character never came from this place,—they possessed local or tribal characters foreign to north-east London.

Excavations have recently been made in Gray's Inn Lane, where the first recorded find of a Palæolithic implement was made. Archæologists have recently been there looking for tools. Some of the labourers are from north-east London, and they have transferred genuine tools and flakes as well as forgeries from here to there, and sold both as Gray's Inn antiquities.

In dismissing the "Palæolithic floor" and its people, we may glance at the probable social condition of the old inhabitants. We have seen that they lived in close company, in enormous

numbers, over a large area extending for many continuous miles. They were not solitary savages, few and far between, but probably, though savage, a peaceful, timid, playful, inoffensive, and intelligent community, living in friendly intercourse with each other. The abundance of scrapers of Neolithic form shows that they scraped skins for clothing, and so were rudely clad. The *Coscinopora* beads seems to indicate that they wore ornaments. The presence of so many small tools and so few large ones shows that the "Palæolithic floor" people were commonly engaged on somwhat fine and neat work, and not on heavy or murderous work. Few of the implements are suited for weapons; nearly all are obviously tools. I should say the people never attacked wild beasts, but depended for food upon roots and wild fruits and the bodies of small animals, the latter probably slain by stones thrown from the hand. If they consumed the flesh of larger animals or fish, they probably waited till they found a dead or stranded example. The men knew how to produce fire, for I have seen its effects in fragments of burnt vegetable matter. The geometrical accuracy of the implements, and the exceedingly fine work upon them, indicate the possession of eyes used to correct ornamental forms, and of uncommonly light and skilful fingers. The men of the "Palæolithic floors" must have been the direct precursors of the Neolithic men, although I am bound to confess I have seen no distinct connecting link. It is remarkable that, although the men of these "floors" produced chipped edges as keen as knives, yet, as far as our present experience goes, no individual ever thought of grinding or rubbing a flint to a keen edge. The "Palæolithic floor" men were probably the same race as the Cave men, but without the shelter of caves. The "warp and trail" which scoured the surface swept most of the traces of these men and their work away.

There is very much to be yet discovered about these men and their works. I have heard from workmen, but have not myself seen it, that a deep trench, like a ditch, occurs on the stratum I have referred to the "Palæolithic floor" between Hackney Downs and Stoke Newington Common; the men describe it as a long underground ditch filled with sand; in one place a tree trunk was found in it, but I did not see it. Once, when at Bedford, I saw a number of massive stones in a heap, that had been taken from the pit. The men who disinterred them said they found them all in an upright position, and in a row, as if they had been placed underground by men.

About 8 feet under the "Palæolithic floor," and 12 feet from the surface, at north-east London, there is commonly reached the top of a stratum of greater age than the one just described. This is the stratum at *B B*, fig. 6, Plate IX. The constituent

stones are the same with those of the gravel and sand last described, but the blocks are on the average considerably larger; the gravel is sub-angular, somewhat abraded, and lustrous. The naturally broken flints are not ochreous. Broken bones, tusks, antlers, and teeth occur, but they are rare and generally fragmentary. A similar set of fossil-shells with the list already given occurs in the sandy seams, but less commonly.

In this deeper gravel, another series of implements is embedded of much greater antiquity than the last. The additional antiquity is proved not only by the condition of the flint of which they are made, but by the nature and make of the implements themselves. Like the last, these latter implements unquestionably belong to the Thames and Lea. On the "Palæolithic floor," all the implements, as a rule, are small, many exceedingly small, and scrapers are as abundant as the Neolithic scrapers of any British camp. In the deeper stratum, the implements are, as a rule, considerably larger, and scrapers are rare. The horse-shoe scraper of Neolithic form was barely known when the latter gravels were laid down. All the weapons and tools, as a rule, are now highly lustrous, and somewhat abraded. The work upon them, though excellent, is not so fine as the work on the tools from the "Palæolithic floor," and the very fine and neat secondary chipping found on the latter tools is unknown in the lower series.

A pointed weapon, from the deeper stratum at Lower Clapton, is illustrated at fig. 35, Plate XX (formerly No. 588 in my collection, but now in the possession of Mr. John Evans). Sometimes unfinished implements are met with, as the one illustrated at fig. 37, Plate XXI, also from Lower Clapton; at other times tools roughly blocked out, but never finished, are found, as in the example at fig. 34, found by me at Acton, and now placed with other implements in the British Museum at South Kensington.

Occasionally this older gravel approaches the surface, and in rare instances flakes, and even implements, belonging to the older gravel, were found by the "Palæolithic floor" men (in their quest for suitable stones for implements), and retrimmed. I have an old flake retrimmed as a more recent scraper, and other examples of the same class from north-east London. A good example from Bedford of an implement retrimmed at a later Palæolithic period is illustrated at fig. 36, Plate XX. The dotted portion at the base shows the natural crust of the flint; the parts at *B B B* are ochreous, and represent the old work, whilst the flaking at *D D D* is much more recent, and creamy in colour. *E* is a modern breakage, and *F* shows the thickness of the bark of decomposition formed since the second trimming was executed. The

dotted line at *C C* shows the shape of the implement before it was retrimmed. Chopping tools are frequent: they vary in size, and though generally large and heavy, a few are of small or medium size. They are generally somewhat rude, but a few are as well finished as ordinary implements. A good example from Stoke Newington is illustrated at fig. 14, Plate XIII (formerly 482 in my collection, now in the possession of Mr. John Evans). The straight part of this tool, more or less covered with natural crust, was held in the hand, and the semi-circular edge was used for chopping or hacking.

No very small scrapers occur; all are of medium size or large; many like implements—with one edge only trimmed—but the obtuse scraping edge of a scraper, in contrast with the cutting edge of an ordinary tool, is always conclusive as to its nature. A large and heavy scraper, from Hanwell, but made with great skill, is illustrated at fig. 38, Plate XXI. Borers are met with, one from Hanwell is illustrated at fig. 39, Plate XXII. All the tools from this deposit have been moved by water; none are found where they were made.

The tools from this 12 feet deposit indicate that the men who made them were ruder than the men of the "Palæolithic floor"; yet, as we find undoubted scrapers and even horse-shoe forms, borers, &c., in this deposit, it must be conceded that the men knew how to rudely dress skins for clothing. The general largeness of the implements and the absence of very fine secondary trimming show that the men had not yet trained their fingers for the execution of the better class of flint-chipping.

Generally, at the base of the 20 feet and even 30 feet excavations, often amongst immense blocks of sandstone, a foot and a half across, and with a weight of from two to five hundredweight, and where all the stones are deeply ochreous, a third class of implement occurs. Sometimes the large sandstone boulders are on the surface, as the one close to the stile leading to Hanwell from Drayton Green, and pointed out to me by Dr. Maxwell T. Masters, F.R.S. This water-worn block of sandstone is 2 feet 6 inches across, and 1 foot 6 inches deep and wide. The third, last, and oldest class of implement is deeply ochreous in colour and greatly abraded. The abrasion is often so great that it is not at first easy to see that the stones have been manipulated at all; in other instances the artificial working is more distinct. All these implements are rude and, as a rule, furnished with a thick ochreous brown bark of decomposition. These tools are, doubtlessly, as far removed from the last in time as the last were from those belonging to the "Palæolithic floor." In this last series fine work is absent, and distinct knife and scraper forms are never met with. That these tools, which from their

condition might have been tossed about in the sea for ages, belong to our present river systems I consider very doubtful.

An implement of the oldest class, from Leyton, near Stratford, Essex, is illustrated at fig. 40, and another from Canterbury, where seams of ochreous gravel with implements occur, at fig. 41 (formerly No. 100 in my collection, now in the possession of Mr. John Evans). The Canterbury deposits are not dissimilar from the Leyton ones, as the majority of the Canterbury implements are lustrous and but slightly abraded, whereas these brown-barked, abraded examples occur in distinct ochreous, brown seams. It is easy to prove that these brown implements were objects of enormous antiquity at the time when the river gravels of medium size were laid down, as some of them show accidental chippings of the latter age. The Canterbury specimen has been so chipped. The injuries were made when the Canterbury river gravels were laid down, and the chipped parts at *A A* are non-ochreous and lustrous, in the style of the Canterbury implements of medium age. These chips, therefore, on the ochreous bark are as old as the lustrous Canterbury implements. The implement itself is enormously older.

It is not easy to form an idea of the men who made the oldest tools; they were savages of low degree, with instruments suitable only for hacking and battering. As no scrapers or knife-forms are to be found, the men probably knew nothing of dressing skins, and so went unclothed. Although there seems to be a distinct gap between each of the three Palæolithic ages here described, yet such gaps are possibly not real, for implements are now and then found showing intermediate characters. I am not inclined to look upon any of the men as murderous brutes, but rather (like many other wild animals) timid, retiring, and playful creatures.

During the last few years a considerable number of Palæolithic implements and flakes have been found in the so-called glacial gravels of Herts and Essex; but the age of the gravels is not certain, and it seems exceedingly probable that some of the Palæolithic men from the "floor," which certainly occurs as far north as Cheshunt, might easily have walked on to the glacial heights of South Herts, and selected flints from exposed patches of glacial gravel for their tools. Such men would have left chips, and perhaps an occasional implement, in the gravel. A Palæolithic implement, therefore, on the surface of a glacial deposit does not of necessity prove the glacial age of the tool; it may belong to the most recent of Palæolithic periods. The Palæolithic men were not always on the river banks; they now and then ventured inland, and there left relics of their presence. Palæolithic implements and flakes have been found sticking in

the exposed London clay at north-east London, and no one would consider these tools to be as old as the London clay.

It will be difficult to trace the presence of man by his works further back than the rude, greatly abraded, ochreous tools of stone. Before this period man probably used naturally fractured blocks of stone for hacking and hammering, and possibly for sometimes defending himself against other animals.

Description of Plates VIII to XXIII.

Fig. 1. Map of North-East London, showing the disposition of gravel in the valleys of the Lea and Roding.
„ 2. Section of North-East London, across the Lea and the Roding.
„ 3. Section through the valley of the Lea.
„ 4. Section through the valley of the Roding.
„ 5. Section through the valley of the Lea, looking north, showing the probable position of the "Palæolithic floor" prior to the deep excavation of the valley.
„ 6. Section of the "Palæolithic floor," north of Stoke Newington Common.
„ 7. Section through the bed of a brook of Palæolithic age filled with stratified sand, and surmounted by "warp and trail."
„ 8. Section of part of "Palæolithic floor," with trail pushing under and upheaving it.
„ 9. Sand-pit east of Stoke Newington Common, showing the "warp and trail," over the stratified implement-bearing sands.
„ 10. Section of the sand-pit in Fig. 9.
„ 11. Flint knife-form from the "Palæolithic floor" at Leyton in Essex ($\frac{1}{2}$ natural size).
„ 12. Flint wedge-form ($\frac{1}{2}$).
„ 13. Flint core ($\frac{1}{2}$).
„ 14. Flint chopper-form ($\frac{1}{2}$).
„ 15. Flint implement from "Palæolithic floor" ($\frac{1}{2}$).
„ 16. Trimmed flint flake from ditto ($\frac{1}{2}$).
„ 17. Flint implement from ditto ($\frac{1}{2}$).
„ 18. Ditto ($\frac{1}{2}$).
„ 19. Flint scraper from ditto ($\frac{1}{2}$).
„ 20. Piercing tool from "Palæolithic floor" at Grays Thurrock ($\frac{1}{2}$).
„ 21. Replaced flint flakes from "Palæolithic floor ($\frac{1}{2}$).
„ 22. Large flint implement from ditto, Stoke Newington ($\frac{1}{2}$).
„ 23. Unfinished flint implement from Bedford ($\frac{1}{2}$).

Fig. 24. Large rude flint implement from near Hounslow ($\frac{1}{6}$).
„ 25. "Flint anvil" from the "Palæolithic floor" ($\frac{1}{2}$).
„ 26. Quartzite hammer-stone from ditto ($\frac{1}{2}$).
„ 27. Flint "hammer" from "Palæolithic floor," Grays Thurrock ($\frac{1}{2}$).
„ 28. Piece of fossil bone, of the form of an implement, from the "Palæolithic floor" ($\frac{1}{2}$).
„ 29. Flint "punch," from "Palæolithic floor" at Grays Thurrock ($\frac{1}{2}$).
„ 30. *Coscinopora globularis*, D'Orb., artificially enlarged and showing traces of ligament (actual size).
„ 31 and 32. Flint fabricators from Stoke Newington and Grays Thurrock ($\frac{1}{2}$).
„ 33. Fragment of fossil, antler of red deer, broken in Palæolithic times and naturally cemented ($\frac{1}{2}$).
„ 34. Unfinished flint implement, from Acton ($\frac{1}{2}$).
„ 35. Pointed flint weapon from Lower Clapton ($\frac{1}{2}$).
„ 36. Old Palæolithic implement, retrimmed in a more recent Palæolithic time ($\frac{1}{2}$).
„ 37. Unfinished flint implement, Lower Clapton ($\frac{1}{2}$).
„ 38. Flint scraper from Hanwell ($\frac{1}{2}$).
„ 39. Flint borer from Hanwell ($\frac{1}{2}$).
„ 40. Flint implement of oldest class, from Leyton, Essex ($\frac{1}{2}$).
„ 41. Ditto from Canterbury ($\frac{1}{2}$).
„ 42. Illustration of the probable mode of holding, hacking, and chopping tools in Palæolithic times.
„ 43. Illustration of the probable mode of finishing flint implements, with stone hammer and punch, in Palæolithic times; suggested by the plan adopted by successful forgers.

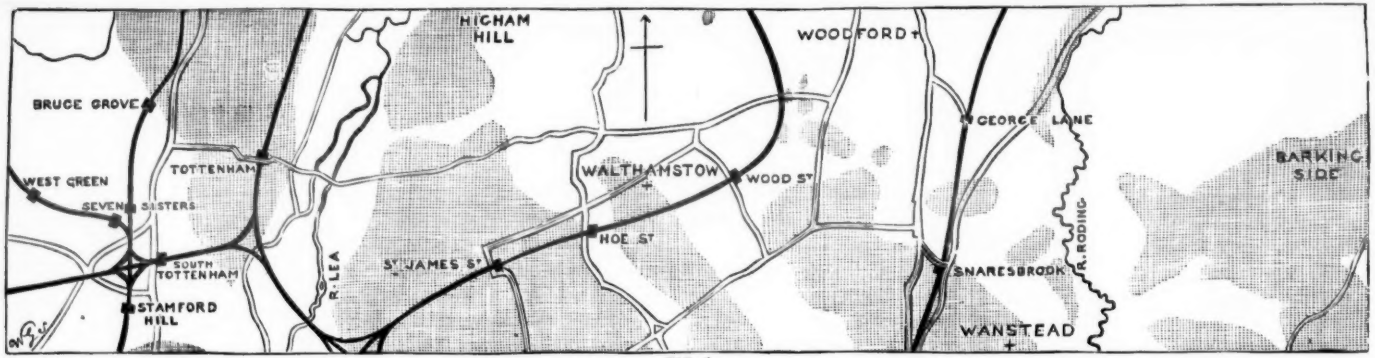


FIG. 1.

MAP OF NORTH-EAST LONDON, SHOWING DISTRIBUTION OF GRAVEL IN THE VALLEYS OF THE LEA AND RODING.

FIG. 2.—SECTION OF NORTH-EAST LONDON, ACROSS THE LEA AND THE RODING.

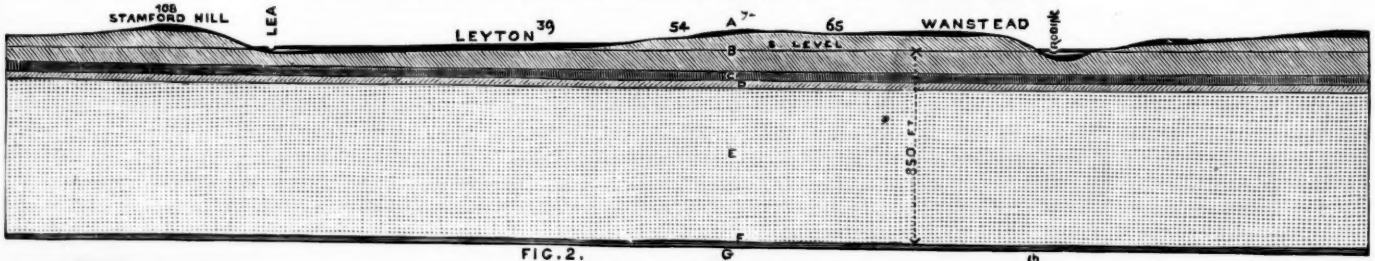


FIG. 2.

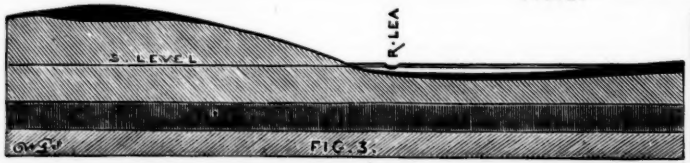


FIG. 3.

SECTION THROUGH THE VALLEY OF THE LEA.

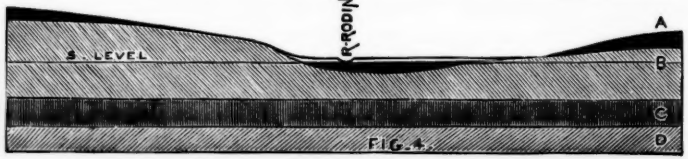


FIG. 4.

SECTION THROUGH THE VALLEY OF THE RODING.

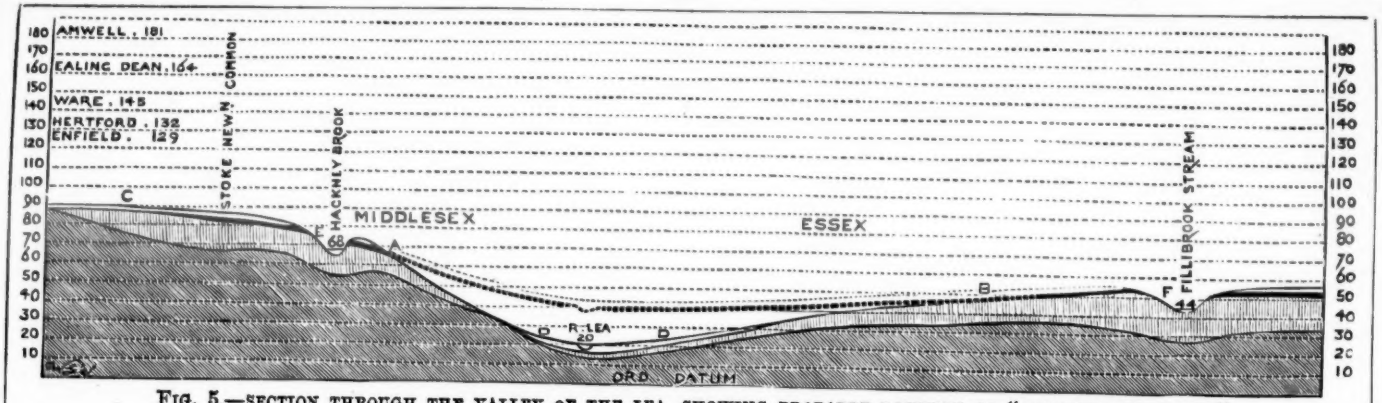


FIG. 5.—SECTION THROUGH THE VALLEY OF THE LEA, SHOWING PROBABLE POSITION OF "PALÆOLITHIC FLOOR" PRIOR TO DEEP EXCAVATION OF VALLEY.

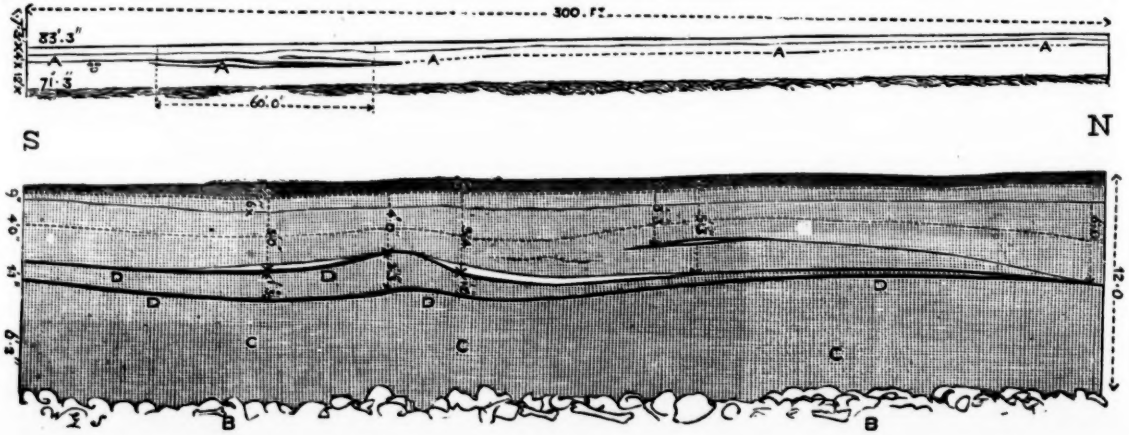


FIG. 6.—SECTION OF "PALÆOLITHIC FLOOR," NORTH OF STOKE NEWINGTON COMMON.

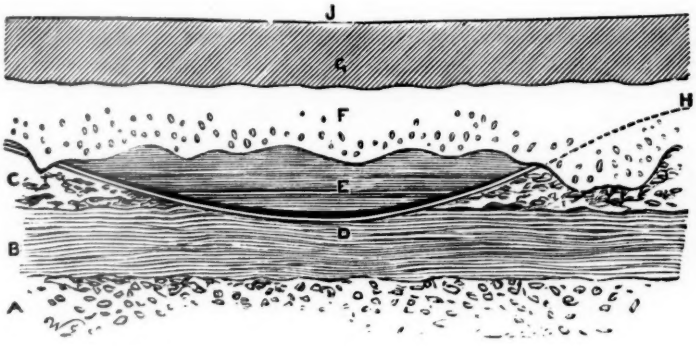


FIG. 7.—SECTION THROUGH BED OF A BROOK OF PALÆOLITHIC AGE, FILLED WITH STRATIFIED SAND, AND COVERED BY "WARP AND TRAIL."

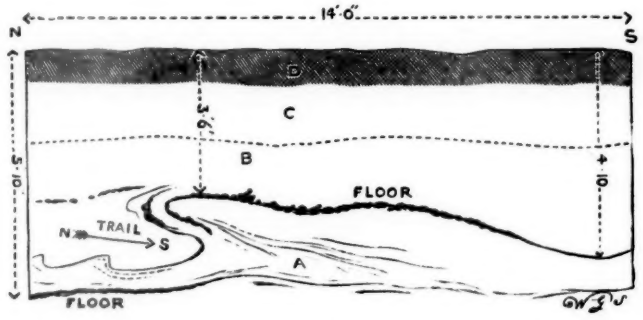


FIG. 8.—SECTION OF PART OF "PALÆOLITHIC FLOOR," WITH "TRAIL" PUSHING UNDER AND UPHEAVING IT.

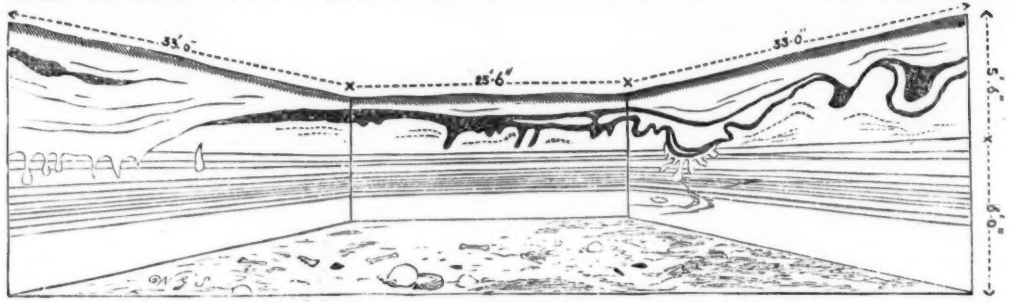


FIG. 9.—SAND-PIT, EAST OF STOKE NEWINGTON COMMON, SHEWING THE "WARP AND TRAIL" OVER THE STRATIFIED IMPLEMENTIFEROUS SANDS.

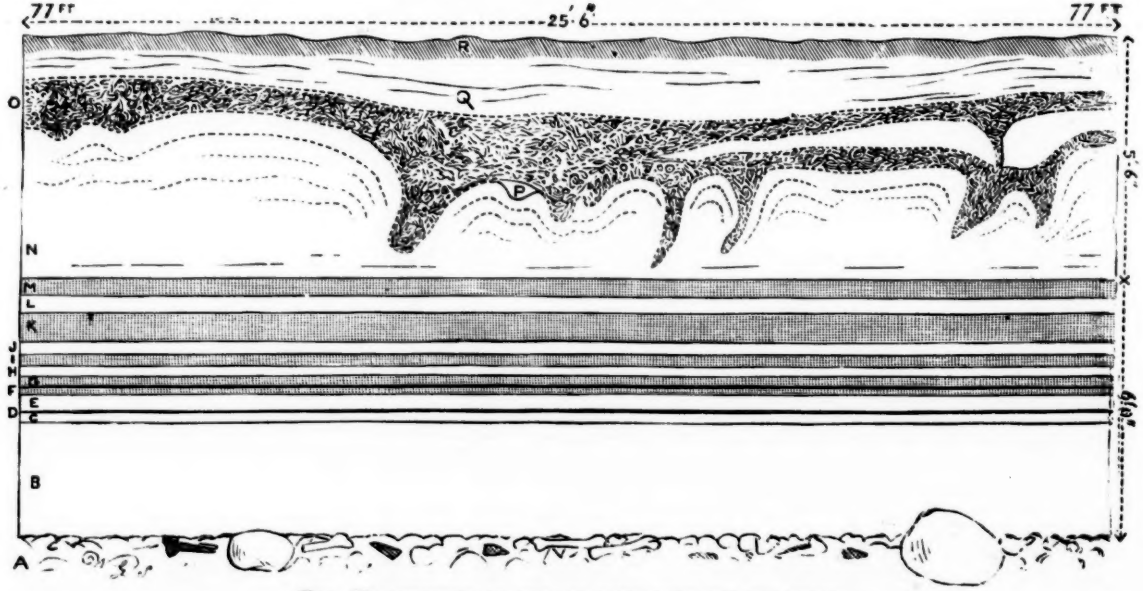


FIG. 10.—SECTION OF END OF SAME SAND-PIT ENLARGED.

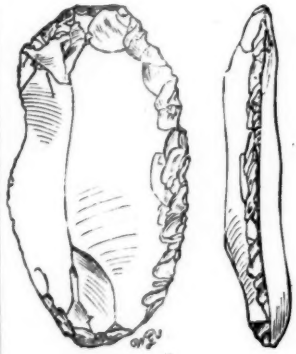


FIG. 11.

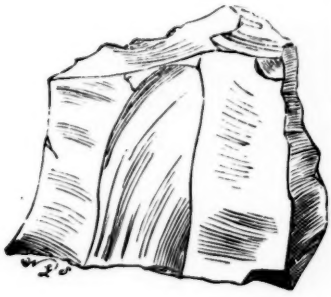


FIG. 13.

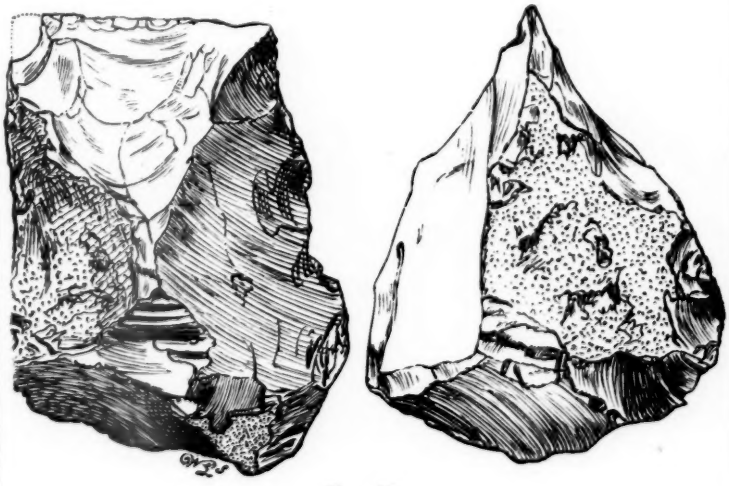


FIG. 12.

FLINT KNIFE, CORE AND WEDGE.

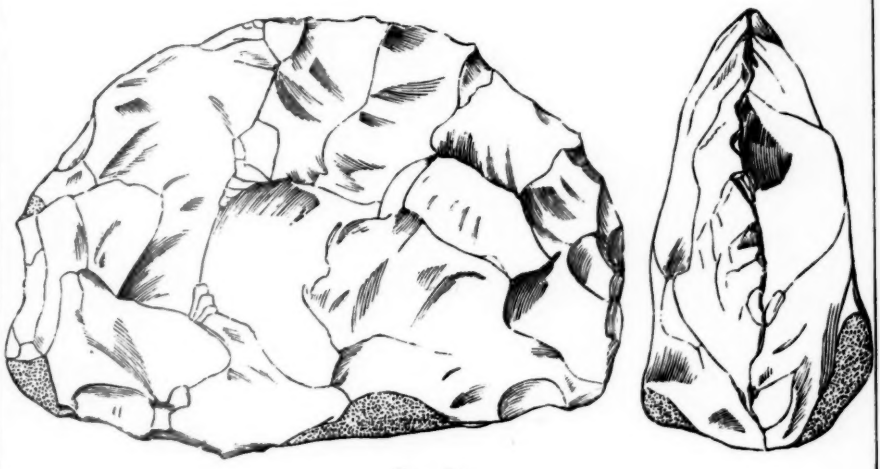


FIG. 14.

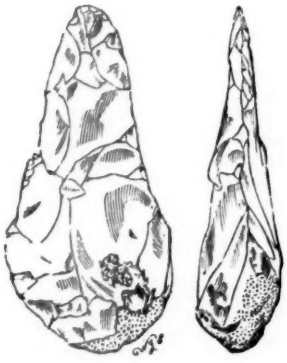


FIG. 15.

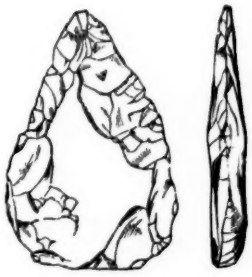


FIG. 16.

FLINT CHOPPER-FORM AND OTHER IMPLEMENTS.

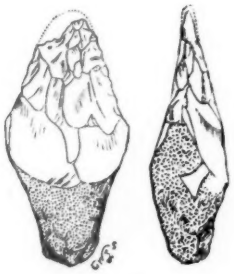


FIG. 17.

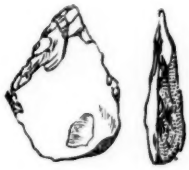


FIG. 18.

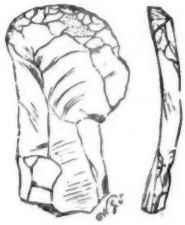


FIG. 19.

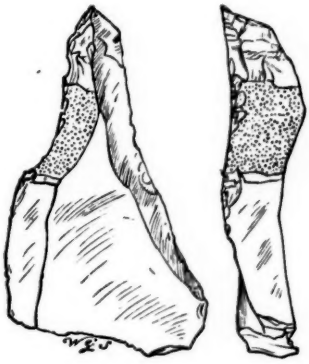


FIG. 20.

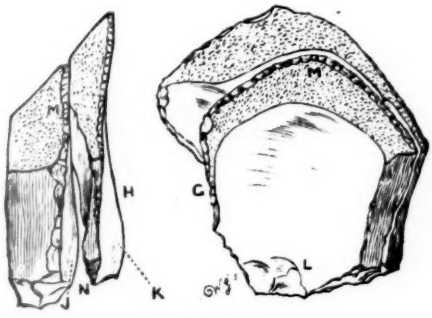


FIG. 21.

WORKED FLINTS OF VARIOUS FORMS.

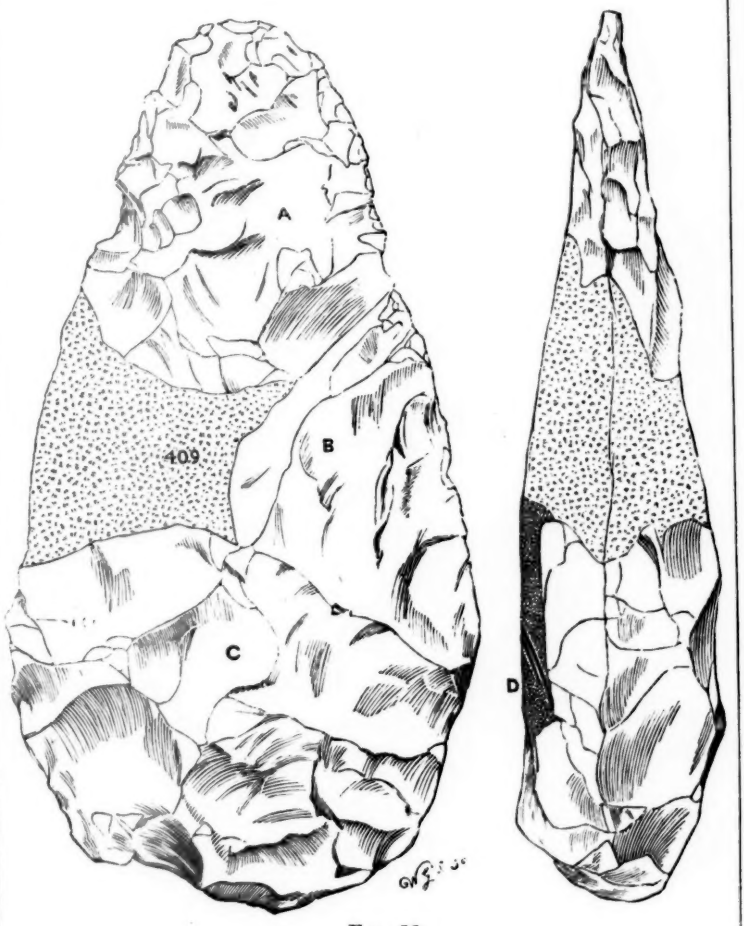


FIG. 22.

FLINT IMPLEMENT FROM THE "PALÆOLITHIC FLOOR," STOKE NEWINGTON.

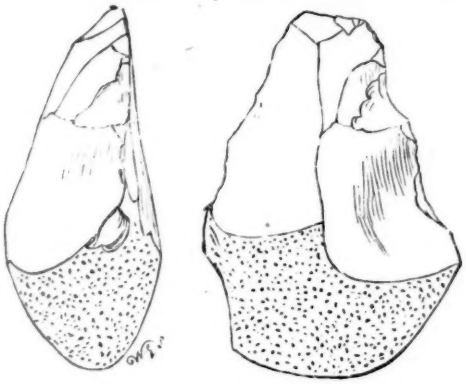


FIG. 23.

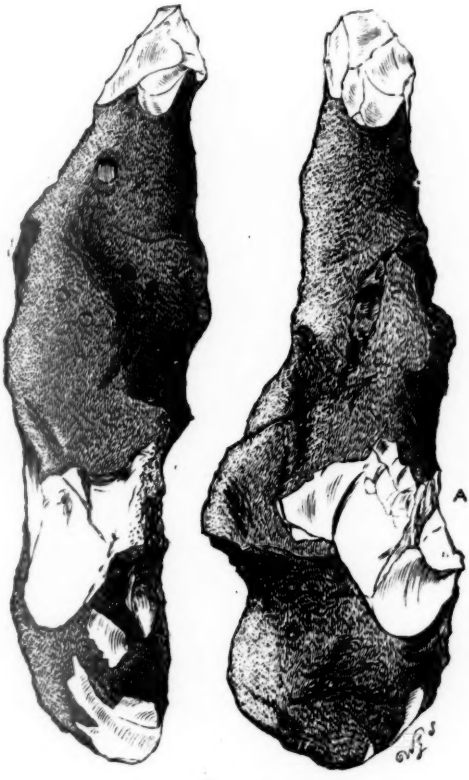


FIG. 24.

UNFINISHED IMPLEMENT FROM BEDFORD, AND IMPLEMENT FROM ISLEWORTH.

FIG. 25.

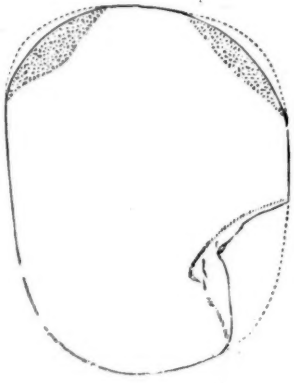


FIG. 26.

FIG. 27.

"ANVIL STONE," AND "HAMMER STONES."

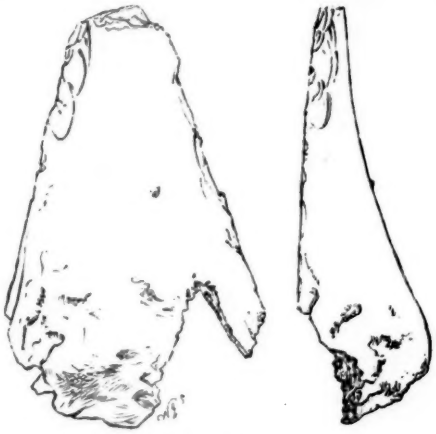


FIG. 28.

FIG. 29.

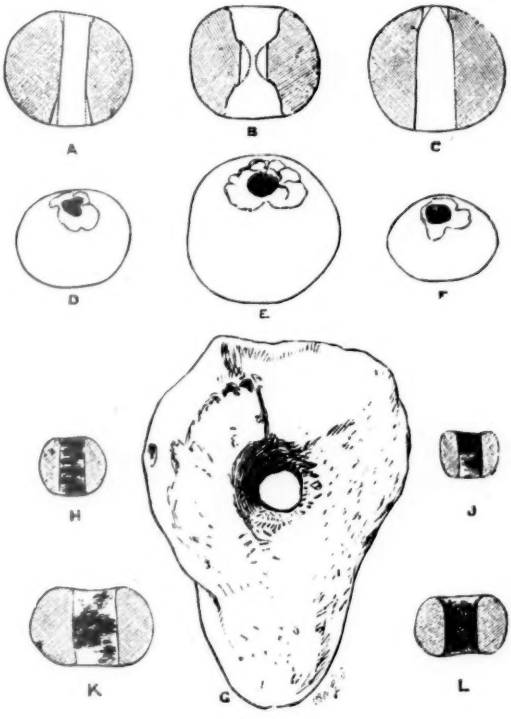


FIG. 30.

FRAGMENT OF FOSSIL BONE, FLINT "PUNCH," AND BEADS OF COSCINOPORA.

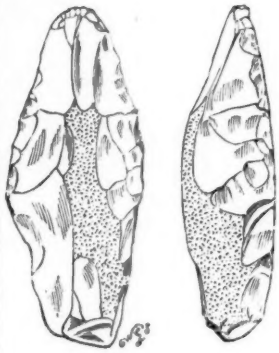


FIG. 31.

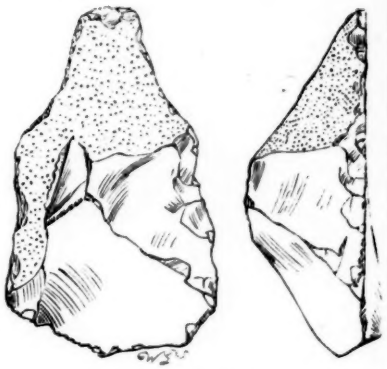


FIG. 32.

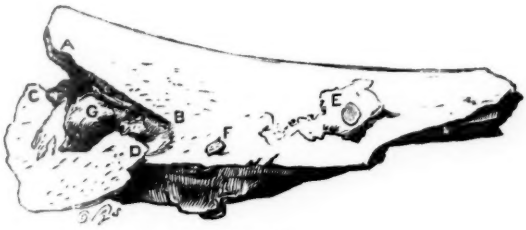


FIG. 33.

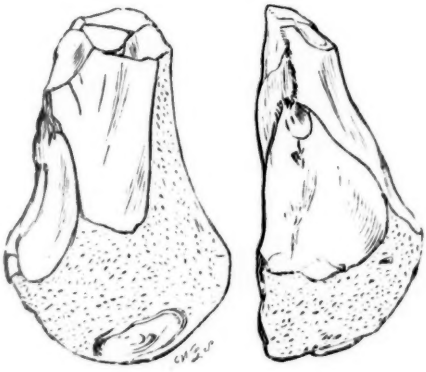


FIG. 34.

FLINT "FABRICATORS," FRAGMENT OF ANTLER, AND UNFINISHED IMPLEMENT.

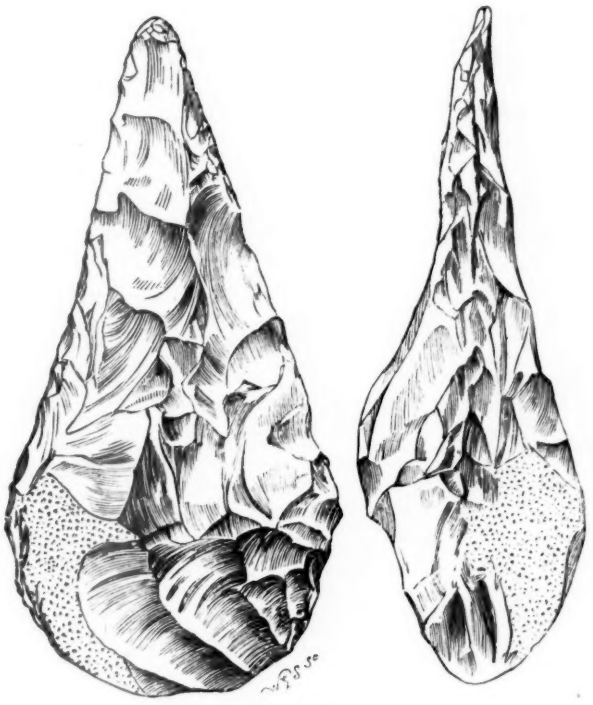


FIG. 35.

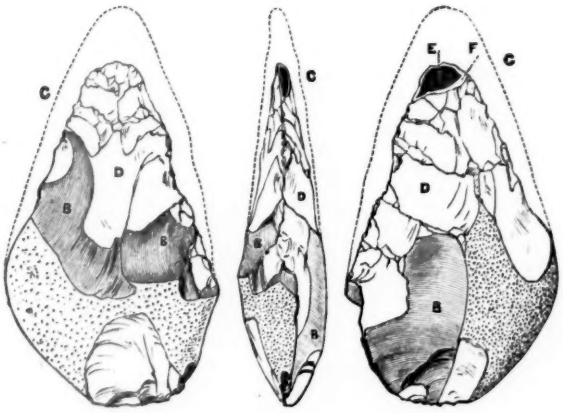


FIG. 36.

FLINT IMPLEMENTS FROM NORTH-EAST LONDON, AND BEDFORD.

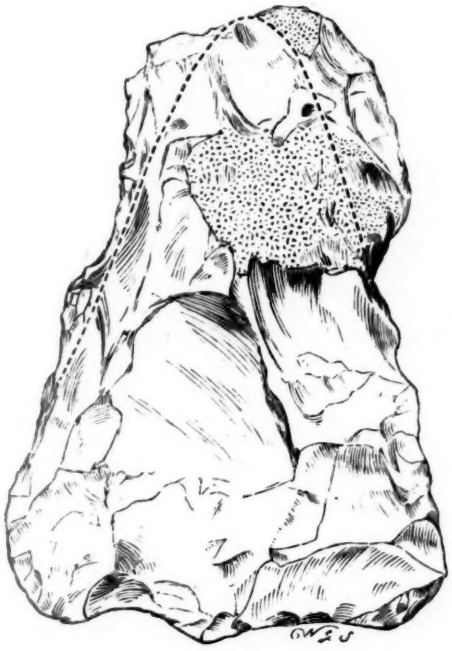


FIG. 37.

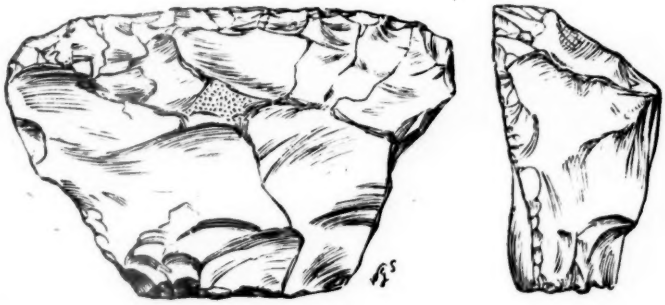


FIG. 38.

UNFINISHED IMPLEMENT AND SCRAPER.

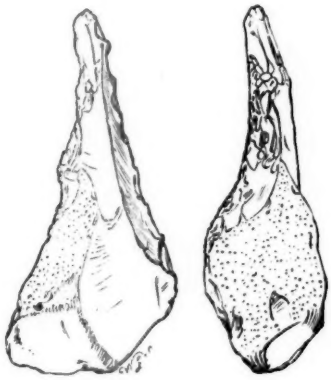


FIG. 39.

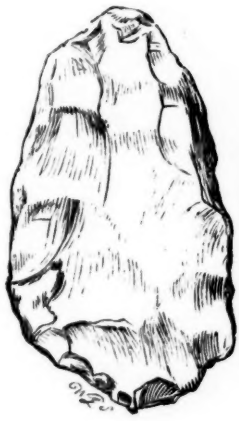


FIG. 40.

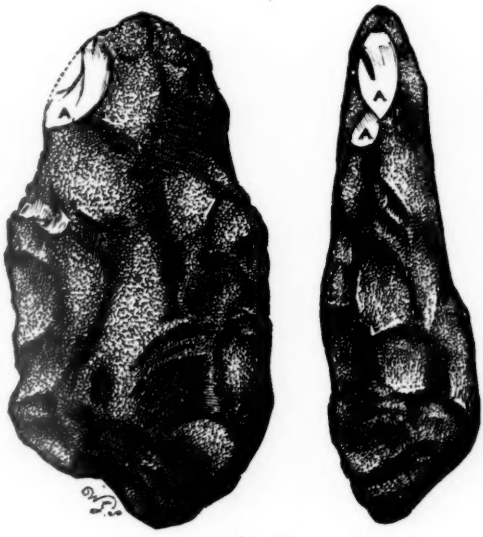


FIG. 41.

"BORER" FROM HANWELL, AND IMPLEMENTS FROM LEYTON, AND CANTERBURY.

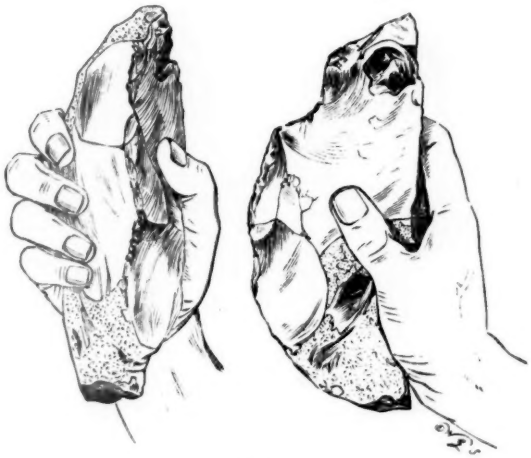


FIG. 42.

FIG. 43.

PROBABLE MODE OF HOLDING CERTAIN STONE TOOLS, AND OF FINISHING FLINT IMPLEMENTS.